DISPERSION AND SPATIAL DECENTRALIZATION IN THE BRITISH COLUMBIA PUBLIC SERVICE

by

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ABSTRACT

Although economic geographers have traditionally emphasized private sector industrial location, recent shifts in employment patterns have focussed attention on administrative and public sector employment. This thesis is a study of the administrative spatial patterns in the British Columbia Public Service, and the factors which produce such geographic distributions. In particular, the two phenomena studied are the dispersion of administrative employees and the spatial decentralization of decision-making authority. The approach used is that of policy analysis, with the spatial patterns which presently exist assumed to reflect the government's implicit dispersion and spatial decentralization policies.

These spatial patterns are quantitatively described through the development of indices for the two major variables. Spatial locations are aggregated into three categories: the two major urban centres of Victoria and Vancouver, five regional centres, and other communities. Authority is measured using Dr. T. T. Paterson's decision band job evaluation categories. The indices for a sample of thirty administrative branches are compared, and similarities and differences in distributive patterns are analyzed.

Administrative spatial patterns are products of continuing administrative and political processes of distribution and adaptation. The organizational objectives of effectiveness and efficiency in administrative operations can conflict with the government's social policy objectives with regard to economic development. The administrative factors which affect optimal distribution patterns are reviewed, and the role of government administrative employment in economic development is discussed briefly.

A review of the spatial policies of the governments of Great Britain, Sweden and Canada is used to assess policy alternatives. While it is not possible to evaluate the appropriateness of these alternatives or of present policy without detailed communication, economic and city-system studies, and without a clearer understanding of the government's values and social policy objectives, some general observations are made. The present policy appears to be oriented toward optimization of operations at a sub-organizational (departmental) level, and results in apparent sub-optimization for the total Public Service organization. Such a policy also precludes the use of the distribution of government operations as an instrument of regional economic policy. Co-ordination of distribution patterns should result in increased operational efficiency for the total Public Service. There also appears to be a potential for

using government administrative employment as a tool for economic policy, but perhaps this could only be done at the expense of some reduction in efficiency of operations.

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CHAPTER I

INTRODUCTION AND DEFINITIONS

A. *Introduction*

This thesis is a study of the spatial patterns of administration in the British Columbia Public Service and the factors that produce such geographic arrangements. In particular, two phenomena are to be studied, the dispersion of administrative employees and the spatial decentralization of decision-making authority.[1] These spatial patterns are just two aspects of the complex organizational entity that is the Government of British Columbia, and the complex social system of which this government is a part. It is recognized that these patterns are not random or accidental, but are the products of continuing administrative and political processes of distribution and adaptation. The processes that influence spatial administrative patterns are constantly changing and evolving, with new influences emerging and older determinants lingering only in the form of inertia. The complexity of the problem--to identify and define the factors which have had the most influence on spatial distribution from the myriad activities and forces of government--necessitates that if understanding is to be gained, a systematic approach must be used to gather and

analyze the pertinent information. This chapter will define the terms used in this thesis, and introduce its methodology and conceptual framework.

The basic objectives of this thesis are: (1) to define quantitatively the patterns of (a) dispersion and (b) spatial decentralization in a sample of branches of the British Columbia Public Service; (2) to determine what relationship exists, if any, between these two variables in the branches studied; (3) to determine if administrative branches with similar functions tend to have similar spatial patterns; (4) to discuss, through a review and integration of the theoretical and empirical literature, how different spatial patterns develop; (5) to discuss how spatial distribution of staff and authority can affect organizational performance; and (6) to review and evaluate the British Columbia government's policies with regard to dispersion and spatial decentralization of its administrative operations. The first three of these are primarily descriptive, and are covered in chapters II and III, with some further discussion in chapter VI. The last three objectives call for analysis of several variables (many of which are intangible), and are discussed in chapters IV and VI.

B. Rationale

A better understanding of the spatial distribution of the administrative branches of government could be helpful

to students of at least two complex sets of phenomena--regional economic growth and formal organizations. The role of the spatial pattern of government in regional economic development in both developed and underdeveloped countries has recently become the object of both governmental and academic study.[2]

Government policies to disperse departmental or divisional headquarters from the capital city exist in several countries, but it is not clear that there is more than an intuitive appreciation of the magnitude of the impacts of such policies, nor are most programs more than token efforts at spatial dispersal.[3] It is recognized that direct payrolls of the dispersed offices and their regional economic multipliers provide only a partial measure of the economic effect on the recipient community (and, in a negative sense, the source community). There are numerous external economies generated in the recipient communities. For example, newly arrived governmental offices may act as propulsive industries, causing complementary activities in the private sector to be located near them. Exactly what factors determine the magnitude of this agglomeration growth-pole effect are unknown, but most writers who have studied this problem speculate that the amount and kind of decision-making authority which the spatially dispersed offices carry with them are primary determinants.[4]

Empirical research on the economic impact of administrative spatial dispersal has been restricted to the study of the direct economic effects in recipient communities, and has been unable to assess the externalities, partially because of the lack of adequate yardsticks to measure the possible independent variables. This thesis could assist in the development of tools to measure and describe one of these, the spatial patterns of administrative organizations.

Students of administrative systems rarely consider spatial factors as elements affecting organizational behavior.[5] The organization is generally seen as a component, as are the physical, organizational, and social environments, in a more inclusive "co-operative system." Thus, physical environment and spatial factors are "a part of the co-operative system, but never a part of the organization."[6] Most administrative theorists would agree with Thompson: "Organization theory is only concerned with those aspects of behavior which are determined by organizational structure."[7] Because of the administrative theorists' lack of appreciation for the importance of, or interest in, spatial factors, such phenomena as field administration and geographic dispersal of divisional headquarters are treated as if they are just other types of organizational problems involving delegation of authority and not as geographic problems involving the spatial movement of information and personnel.

Geographers and other social scientists, on the other hand, have tended to ignore administrative (as distinct from service, marketing or manufacturing) organizations.[8] The reasons for this omission are unclear, but it may be because, unlike other types of organizations, administrative units tend to have a multiplicity of activities and objectives. Further, effective performance in administrative units is often difficult to identify, let alone quantify. This is particularly true in public sector organizations, where not even the profit measure is available; goal and objectives are often not made explicit (and often are not fully understood by organization members themselves); and since poor performance could be politically embarrassing, evaluation criteria and evaluation study results are often not available to academic researchers.

Thus, because administrative theorists have not intensively considered spatial factors, and geographers and social scientists tend to avoid the study of administrative organizations, there has been very little study of spatial patterns of administrative systems. This, however, does not indicate the spatial relationships within administrative organizations, and the organization's spatial relationship to its territory are unimportant. Hodgetts has observed that "Geography not only dictated the goals of the [Canadian] public service, it imposed the conditions which governed the ways in which the tasks themselves had to be performed. If

administrative apoplexy was to be avoided at the centre, the factors of space, time, and communication insisted that organization had to be carried to the sparsely populated hinterland."[9] Hodgetts' study of the Canadian Public Service's response to its forced geographic dispersion was the inspiration for this study of the British Columbia Public Service which is faced with similar geographic pressures.

C. Major Definitions and Concepts

The interdisciplinary nature of this research makes it especially important to define carefully the terminology. Different meanings in different countries, different disciplines, or even different schools within disciplines have arisen in the study of organizations. For example, "dispersion," "decentralization," and "deconcentration" have all been applied to the same phenomenon (what in this thesis is called dispersal), yet some analysts use these terms to distinguish between different types of spatial patterns. In this study *dispersal* always refers to the spatial distribution of people; while *decentralization* refers to the distribution of authority. Unless otherwise stated, these terms will be used to describe patterns of distribution, and not the processes that produce these patterns. Thus, the dispersal of administrative employees will generally refer to a static pattern of spatial distribution of the individuals, not the movement of people to field offices. In the

discipline of geography, decentralization generally refers to processes or policies leading toward decrease in the concentration of population in the urban centre(s). For purposes of this study a different meaning is used. Decentralization will be taken to mean the allocation of decision-making authority within an organization (i.e., a type of structure of authority), a definition consistent with standard usage in administrative study.

Spatial decentralization refers to the geographic pattern of authority produced by the delegation of rights to make administrative decisions on behalf of the organization to employees in various locations in the province. It should be noted that this definition does not include the concept of "devolution," or the allocation of authority to subordinate levels of government, although this would be another form of spatial distribution of authority.[10]

Administration is used in its broadest sense, incorporating all information-processing roles of the public service. It includes management officials, technicians in advisory roles, and clerical support staff, but excludes those engaged in material rather than information processing and production (such as machinists or construction workers). Also excluded are political, as distinct from public service, positions (the ministers and members of the Legislative Assembly). This definition of administrative employees basically coincides with the definition of white collar

workers used by the International Labor Office, except that sales workers have been excluded, and it is consistent with the definition of "office employees" used by Goddard, Bannon, Daniels, Burrows, Davies and others.[11]

The essence of *policy* is seen as being what the organization does, or how it does things, not how it says that it does them. In other words, actions are at least as important as rhetoric. Thus, it is assumed that a branch's dispersion and spatial decentralization policies can be inferred from its actual spatial patterns of dispersion and spatial decentralization. If the written policy statements of the organization are actually used as guides for its actions, these statements will be helpful in understanding its policies, but if there is dissonance between the written statements and the organization's actions, it is the actions which are taken to represent the policies not the statements. Thus, for any activity in which the organization is engaged it is assumed that there is always a policy which is reflected in its actions, even if the policy is to handle matters on an *ad hoc* or even arbitrary basis. It should be noted that this definition of policy, putting more emphasis on actual working patterns rather than stated intention, is not universal in organizational study. Many theorists make a distinction between "policy" and "practice." Among those who make this distinction is Herbert Simon, but even he agrees that "Often the line between policy and practice is not sharp unless the

organization follows the 'practice' (or 'policy') of putting *all* its policies in writing."[12] Since, as will later be apparent, governmental policies with regard to dispersion and spatial decentralization are not all put in writing, it is felt that this alternate definition is appropriate for this thesis.

Authority will be taken to mean "structural authority," or the right to make decisions on behalf of an organization which has been consciously delegated to the individual by merit of his or her position in the organization. The amount of power that a person exercises would be a better measure than authority of how the organization actually operates, but power can be a very difficult variable to identify, let alone quantify.[13] Since organizations have a tendency to legitimatize the functional distribution of power that develops, authority may be a valid indicator of power, especially in an organization such as the B.C. government where job descriptions and classifications are periodically re-evaluated.

The organization under study is the *B.C. Public Service*. This thesis will examine only those branches whose employees are hired through the Public Service Commission. It will not study the spatial patterns of crown corporations, but it does include some of the extra-departmental agencies (which Hodgetts calls the "structural heretics"). Chapter II will describe the bases for inclusion of these marginal

branches.

D. Analytic Framework

The analytic approach of this thesis is a form of policy analysis. There are at least eight families of models of policy formulation, and at least as many models for the policy analysis process.[14] One element that the various theorists seem to agree upon, however, is that policy analysis should be conducted in a systematic manner.

The following policy analysis process is based on elements common to most of the models, and is used for this thesis:

(1) Define the specific policy or policies under study.

(2) Describe and analyze the present policy in terms of actions and behavior of the organization.

(3) Identify the goals and objectives of the organization.

(4) Identify practicable alternatives (policies and objectives).

(5) Evaluate the effectiveness and efficiency of the present policy with reference to present objectives relative to alternative policies.

(6) Evaluate the appropriateness of the present objectives and policy.

It should be noted that the first four steps should be undertaken, as much as possible, from a value-neutral viewpoint, whereas the latter steps inherently involve value judgements.

It is these first four steps which outline the format for most of this thesis. This chapter defines the policies under study (step 1); chapters II and III describe and analyze present spatial distributions (step 2); chapters IV and V substantially relate to steps 3 and 4; and the last chapter attempts to evaluate the policies and objectives.

The above process allows (some authors suggest that it demands) subjectivity on the part of the policy analyst, but this subjective input is delayed until the data and information have been gathered as objectively as possible.

In this process the objectives are evaluated as well as the effectiveness and efficiency of the policy in meeting the objectives. This differs markedly from most models of policy analysis which accept the objectives as defined by the organization. Chapter II will explain the data collection process, and describe the indices which were developed to measure dispersal and spatial decentralization.

E. Footnotes

[1]The definitions of these terms will be more thoroughly discussed in section I-C, but briefly, in this thesis dispersal always refers to the spatial distribution of people, and spatial decentralization always refers to the geographic distribution of authority.

[2]Examples include the studies reported in James Heaphy, ed., *Spatial Dimensions of Development Administration* (Durham, N.C.: Duke University Press, 1971); Great Britain, *The Dispersal of Government Work from London* (The Hardman Report), (London: Her Majesty's Stationery Office, 1973); John B. Goddard, *Office Location in Urban and Regional Development* (London: Oxford University Press, 1975); John Rhodes and Arnold Kan, *Office Dispersal and Regional Policy* (London: Cambridge University Press, 1971); and Berwyn Davies, "Structural Change and Implicit Regional Development Policies: The Role of Government Office Employment in British Columbia," (M.A. Thesis, University of British Columbia, 1977). Several other works use the same, or very similar, definitions.

[3]Some of these dispersal policies will be reviewed in sections V-G and V-H.

[4]See, for example, J. Westaway, "The Spatial Hierarchy of Business Organizations and Its Implications for the British Urban System," *Regional Studies* 8 (1974), and John Friedman, "The Spatial Organization of Power in the Development of Urban Systems," *Comparative Urban Research* 1 (December 1972):5-42.

[5]There are, of course, exceptions to this general statement, and these will be discussed in chapter V. The most important of these studies are: James W. Fesler, *Area and Administration* (Tuscaloosa: University of Alabama Press, 1949); Brian C. Smith, *Field Administration*, Library of Political Studies Series (London: Routledge and Kegan Paul, 1967), and; J. E. Hodgetts, *The Canadian Public Service* (Toronto: University of Toronto Press, 1973).

[6]Chester I. Barnard, *The Functions of the Executive* (Cambridge: Harvard University Press, 1938; Harvard Paperbacks, 1968), p. 76.

[7]Victor A. Thompson, *Modern Organizations* (New York: Alfred A. Knopf, 1961), p. 9.

[8]Again, there are important exceptions, including Peter Toyne, *Organization Location and Behaviour* (Toronto: John Wiley & Sons, 1974); Bryan Massam, *Location and Space in Social Administration* (New York: John Wiley & Sons, 1975), and; Walter Isard, *General Theory* (Cambridge: MIT Press, 1969).

[9]Hodgetts, *Canadian Public Service*, p. 18.

[10]For an excellent discussion of spatial patterns of authority as allocated to various levels of government, see Fesler, *Area and Administration*.

[11]Goddard, *Office Location;* Michael Joseph Bannon, *Office Location in Ireland: The Role of Central Dublin* (Dublin: An Foras Forbatha, 1973); P. W. Daniels, *Office Location* (London: G. Bell and Sons, 1975); E. M. Burrows, "Office Employment and the Regional Problem," *Regional Studies* 7 (1973):17-31, and; Davies, "Structural Change and Implicit Regional Development Policies."

[12]Herbert A. Simon, *Administrative Behavior*, 2nd edition (New York: The Free Press, 1945). Italics mine.

[13]See Barnard, *Functions of the Executive*, especially chapter XII, "The Theory of Authority"; Simon, *Administrative Behavior;* Bernard H. Baum, *Decentralization of Authority in a Bureaucracy*, Ford Foundation Doctoral Dissertation Series (Englewood Cliffs: Prentice-Hall, 1961), and; Thomas Thomson Paterson, *Job Evaluation*, 2 vols (London: Business Books, 1972).

[14]A brief review of models of the policy-making process is provided by R. V. Segsworth in "Models of the Policy-Making Process: An Evaluation," *Optimum* 5 (1974):5-13.

[15]See Marcia Guttentag, "Subjectivity and its Use in Evaluation Research," *Evaluation* 1 (1973):60-65.

CHAPTER II

DESCRIPTION OF SPATIAL PATTERNS: METHOD

A. Previous Research

In the policy analysis process used for this thesis, the second step, after definition of the policy under study, is to describe and analyze the present policy in terms of actions and behavior of the organization. For the policies under study here, this is to describe the patterns of dispersal and spatial decentralization of administrative employees in the B.C. Public Service. There is flexibility in how such information can be organized and presented, so in developing a method to describe these patterns consideration was first given to finding earlier studies which contain the necessary information. Had such research been available, it would have given two major benefits: (1) it would provide a tested system for gathering the information, and possibly a format for summarizing the data; and (2) it could provide historical data for comparison against present patterns. Had such a study been recently conducted, the second of these would not have applied, but the availability of the information could have allowed this researcher to concentrate more of his efforts on analysis rather than data-gathering. Unfortunately, while two similar studies

have been conducted recently, neither provided the necessary quality of information for use in this thesis.

In 1974 the Environment and Land Use Committee Secretariat of the provincial government (ELUCS) conducted a survey of the dispersion of provincial employees.[1] The purpose of this study was to develop an information base for co-ordination of service district boundaries and locations of regional offices for the resource management departments. The survey included the base location of all employees of the public service (at that time, 26,371 individuals), disaggregated by department. It also compared the distribution of all employees to that of those in professional occupational categories. The disadvantages of this survey as a data source for this thesis are: (1) the data are now 3 to 4 years old--neither old enough to be treated as historical for comparitive purposes, nor new enough to be considered current; (2) data are not disaggregated into administrative units smaller than departments; (3) the only disaggregation by level of authority is professional vs. non-professional classifications; (4) administrative employees are not separated from non-administrative; and (5) only some of the data, and parts of the report, are available for analysis. The strength of the survey data is that it is not a sample, but covers the complete public service, and is presumed to be accurate. It took a team of researchers, backed by the authority of the Cabinet, over four months to compile and

analyze the information. This ELUCS survey will be used later for comparison purposes, but the disaggregations were not fine enough for it to be used for this study.

In a recent M.A. thesis at the University of British Columbia,[2] Berwyn Davies attempted to supplement the information provided by the ELUCS survey with data solicited from each of the departments' personnel branches. Unfortunately, many of the branches did not respond to his written requests, and some that did respond were unable to assemble the information into Davies' occupational categories. According to Davies; "Extreme difficulties have been experienced in the collection of occupational data for the Provincial Public Service. . . . The information at my disposal remains incomplete in its most important aspect, its occupational distribution."[3] Since Davies' data are complete for only 8 of the 18 departments, they also were deemed to be an inadequate information base for this study.

Neither Davies nor this researcher was able to find evidence of any other studies of the geographical distribution of the B.C. Public Service. The Public Service Commission has not conducted similar work, nor in fact does it have the necessary information in its computerized databank. Some departments have conducted studies of their own geographic patterns, but these vary considerably in format and quality, as well as generally not being available to non-governmental researchers. Since the distribution of

provincial government employment in B.C. is not reported by Statistics Canada,[4] any other research would need to have used data gathered from departmental sources. According to the personnel directors contacted, no other researchers have requested similar information. Therefore, it is assumed that no other studies have been conducted or are underway.

Similar research in other jurisdictions have tended to be prescriptive rather than descriptive. A goal of "decentralization" (taken as increased dispersion) is defined, and studies are conducted to determine which administrative units may be candidates for dispersal.[5] Such studies usually involve intensive analysis of information flows, and require considerable co-operation on the part of the administrative units under study. When such analysis has been conducted outside of the publice service, it has been done as contract research, and conducted under the auspices of the sponsoring agency.

B. Methodology

There appears to be no model for a quantitative description of patterns of dispersal and/or spatial decentralization of organizations. Therefore a method has been developed which should provide information as to the kinds and variety of spatial patterns found in various administrative branches of the B.C. public service. The process begins by selecting a sample of administrative branches. In the

branches sampled, each administrative employee is categorized as to geographic location, and level of decision-making authority. Assignments of level of authority are based on the standardized Public Service Commission classifications. Indices of dispersion and spatial decentralization are developed for each branch and these are plotted on a graph. The resulting scatter diagram should reveal if there is a relationship between the two variables in the branches studied, and clusters on the graph should indicate which branches share common spatial patterns. This procedure is explained in greater detail in the remainder of this cahpter.

C. Sample Selection

The British Columbia Public Service is too large an organization, with too many diverse programs, to be administered as a single monolithic agency. The functions of government in B.C., as in most governments, are allocated to a number of departments (now called ministries in B.C.), each headed by a member of the ruling political party, and to a variety of non-departmental agencies, generally headed by an appointed board or commission. While some departments have clearly definable roles, and can be treated as "single purpose agencies," other departments are responsible for a miscellaneous assortment of often unrelated programs (such as the Provincial Secretary and Attorney General Departments). Even the so-called single purpose departments, such as

Agriculture or Health, can contain branches or programs with little or no relationship to the other activities of the department. This makes it difficult to group departments into even broad functional categories.

Departments, in turn, are divided into smaller administrative units. The next level of organization is called a branch in this thesis, although in practice the name given to them may be branch, bureau, secretariat or division. As a rule, branches tend to have a more clearly defined organizational rationale than departments, and they can be treated as single purpose agencies and classified into functional categories.

The provincial government is composed of about 200 branches and about 32,000 individuals.[6] Because of the size of the Public Service, only a sample of the branches is studied in this thesis. The governmental units studied are a stratified sample of those branches listed in the 1976-77 provincial *Estimates*, and engaged primarily in administrative activities. A random sample of six branches is taken from each of the following five categories:

(1) *Departmental Administration and Planning:* These include administrative support and policy formulation branches, and other branches which provide intradepartmental administrative and co-ordinating services.

(2) *Services for the Public Organization:* Under this heading several functions are merged ranging from central

purchasing to cross-departmental planning and co-ordinating. These are branches which provide administrative services to a number of departments.

(3) *Resource Management and Development:* This includes branches involved in conservation, management, development and promotion of natural resources and primary industry.

(4) *Development and Protection of Human Resources:* Includes administrative units involved in the protection of rights, and the development of personal growth of individuals.

(5) *Regulatory Agencies:* Includes branches whose primary functions relate to the enforcement of regulations governing the actions of individuals or non-governmental agencies.

Categories of branches which are not sampled or studied include:

(6) *Ministers' and Legislative Offices:* These are not studied because they are locationally determined by the ministers' legislative and political roles. They are all located in Victoria, with no field staff.

(7) *Non-Administrative Branches:* This includes those branches whose primary functions are the production of material output, or a distributive or other service, rather than the processing of information (i.e., Government Buildings Maintenance, Courts, Liquor Control

Board, etc.).

(8) *Votes with No Public Service:* Include those commissions, crown corporations, or other administrative units which are funded by grants or subsidies rather than through standard public service budgeting procedures. These are excluded because many of their employees are not categorized into the standardized system of job classifications used by the Public Service Commission.

(9) *Research:* These are branches which are solely concerned with research, and which generate information to be used or distributed by other branches in the government. These branches are not directly involved in the "line" decision-making of their departments.

(10) *Small Branches:* Includes those with fewer than 20 established positions, or less than $300,000 total salary and wages as reported in the 1976-77 *Estimates*.

(11) *Facility or Regional Management:* Includes those branches whose authority or scope is not province-wide (such as the Islands Trust, or the Creston Valley Management Authority) and those branches whose sole or primary duty is to manage a single facility or complex of facilities (e.g., Government House or a hospital). These can be assumed to be locationally determined by the location of the facility or region managed.

(12) *Miscellaneous:* For those few branches which cannot be

included in any of the above categories. For example, this category includes the Department of Recreation and Conservation's California and London offices, and the Finance Department's Taxation Administration Branch.

All branches are assigned to one of these twelve categories based on the descriptions of their programs contained in the 1976-77 *Estimates*. Since these categories are not mutually exclusive, if a branch could be included in more than one category, the latter seven categories which are not to be studied take precedence over the first five.

More information about the sampling procedure, and a list of all assignments of branches to categories are included in Appendix A. Those branches selected for study are listed in Table I.

D. Analysis of Dispersal

The location of each administrative employee in the branches studied is available from records in the departmental personnel offices. For each branch the number of employees is aggregated into four locational categories: Greater Victoria; Greater Vancouver; the regional centres (Kamloops, Kelowna, Nanaimo, Nelson, Prince George); and other communities. The regional centres were defined by their population size and their identification as common regional headquarters locations for departmental field offices.[7] Suburbs of Victoria, Vancouver and the regional

TABLE I: BRANCHES SELECTED TO BE STUDIED

I. Departmental Administration and Planning

Attorney General: Administration & Support
Highways & Public Works: General Administration--Highways
Environment: General Administration
Human Resources: Departmental Administration
Labour: Dept. Administration & Support Services
Recreation & Travel: General Administration--Travel

II. Services for the Public Organization

Attorney General: Legal Services to Government
Finance: Controlling and Audit Branch
Finance: Purchasing Commission
Highways & Public Works: Construction of Public Buildings
Provincial Secretary: Queen's Printer
Provincial Secretary: Public Service Commission Administration

III. Resource Management and Development

Agriculture: General and Financial Services
Attorney General: Land Registry Services
Environment: Water Resources Administration
Forests: Forest Protection Program
Forests: Range Management Program
Mines and Petroleum: Petroleum Resources

IV. Development and Protection of Human Resources

Attorney General: Corporate, Financial and Regulatory Services
Consumer Services: Community Programs Branch
Health: Hospital Programs
Labour: Manpower Training and Development
Provincial Secretary: Library Services
Provincial Secretary: Provincial Emergency Program

V. Regulatory Agencies

Agriculture: Special & Regulatory Services Program (ex. Youth)
Attorney General: Liquor Control and Licensing Board
Consumer Services: Trade Practices Branch
Highways & Public Works: Safety Inspection
Transportation & Communication: Engineering
Transportation & Communication: Weigh Scale

centres are included in the urban area if the office is located within the Census Metropolitan Area (Victoria, Vancouver) or Census Agglomeration Area (the regional centres).

Dispersal can be analyzed in a number of ways. First, a simple index of dispersion can be calculated for each branch, as the proportion of employees outside the Greater Victoria area, or outside the Greater Victoria and Vancouver areas. This method is comparable to that used by Bowland and by Hodgetts in their studies of the Canadian Federal Public Service.[8] These studies distinguish between employees working in Ottawa (or more precisely, the National Capital Region) and all federal employees working in other locations. The "percentage outside" is used by Hodgetts as a simple indicator of dispersal for comparing the geographical patterns of departments.

The 1974 ELUCS survey indicates that of the whole provincial public service, 26.6% work in Victoria, 34% in Greater Vancouver, 14.4% in the regional centres, and 25% in other communities.[9] Thus, British Columbia has two operational centres, Victoria and Vancouver, and two indices can be calculated--to reflect dispersion from Victoria, and from the urbanized southwest corner of the province.

Such a simple index, however, does not reflect differences between branches that are dispersed to regional centres and those dispersed through the entire province. Another way to analyze branches is to display the information graphically,

comparing the proportion of employees in Victoria-Vancouver, the regional centres, and other communities. Each graph can then be compared to the provincial totals, and to the average pattern of dispersion for the sample of six branches in its functional category. Figure 1 shows the graph for a hypothetical situation.

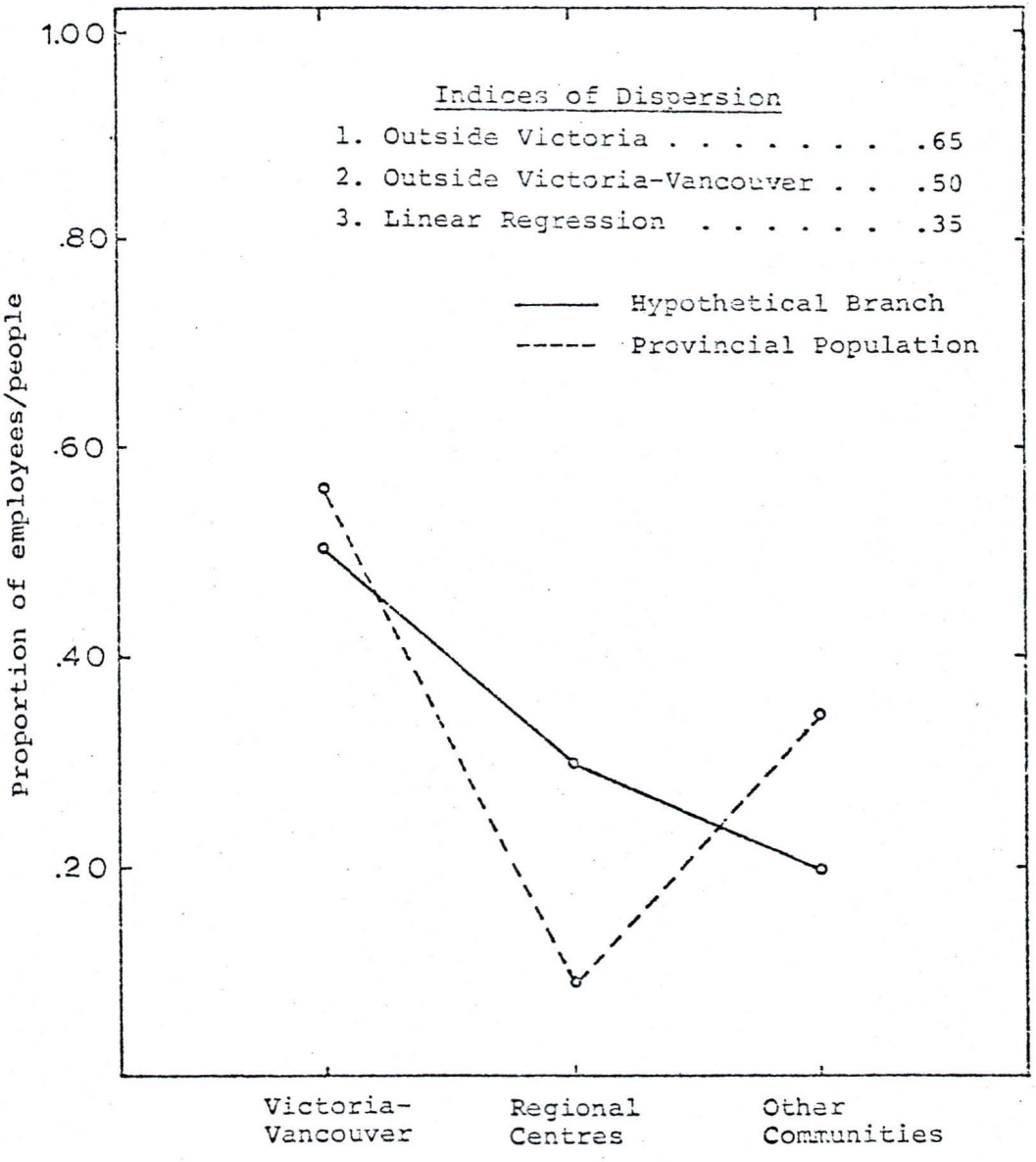
A third index of dispersion is developed by calculating a least-squares regression line for the data in the graph. Since minimal dispersal would be 100% of employees in Victoria-Vancouver, or a slope of -50 (assigning values to Victoria-Vancouver, the regional centres and other communities of 1, 2 and 3 respectively), and maximum dispersal would be all employees in the other communities, with a slope of +50, the slopes can be converted to a 0 to 1.0 scale by adding 50 to the slope and dividing by 100. Thus, the formula for this index of dispersion based on the linear regression line is:

$$\text{Index} = \frac{\dfrac{\dfrac{\sum_{i=1}^{3} X_i Y_i}{3} - \bar{X}\bar{Y}}{\sigma_x^2} + 50}{100}$$

where: X_i = values for Victoria-Vancouver, regional centres, and other communities (1, 2, and 3);

Y_i = total employees at each locational category.

FIGURE 1. Dispersion of a hypothetical branch.



E. Measurement of Authority

Job evaluation is a process of analyzing and assessing the nature of jobs and of ranking them hierarchically according to predetermined criteria, in order to provide an objective basis for remuneration. Dr. Thomas Paterson has developed a method of job evaluation which uses the kinds of decisions which a job entails as the basis for a hierarchic classification.

Traditionally, job evaluation has been based on a number of factors such as skill required, difficulty of work, level of responsibility, experience needed, working conditions and any other variables which may justify differences in pay.[10] In the 1950s Dr. Elliott Jaques of the Tavistock Institute developed a system whereby only one variable is considered in establishing remuneration--individual responsibility as measured by time span of discretion (defined as the maximum period of time that would elapse under each job's particular conditions of review, during which the employee is authorized and expected to exercise judgement in discharging the responsibilities allocated to him). Jaques defines work as "the totality of prescribed and discretionary activities that a person does in discharging the responsibilities he has contracted to undertake in order to earn a living. Moreover, concealed within the statement--in the prescription for measuring level of work--is the notion that what is experienced as one's level of work has only to do with the use of

discretion and judgement, and has nothing whatever to do with the prescribed content of one's work."[11] Thus, under Jaques' definition, it is reasonable that the amount of discretion that an individual has, in other words his level of responsibility, should be the single basis for job pay. Discretion and responsibility are sufficiently "real" phenomena that organization members will agree that they exist, and may be able to agree on rankings of jobs according to these characteristics, however they are abstract concepts which are impossible to measure directly. Jaques, however, found a coinciding variable--time span of discretion--which he advocated as the basis of equitable job payment.

Dr. Paterson, in his research on decision theory, found that decisions do not only differ as to degree of importance, but also differ in kind as one ascends the organizational hierarchy.[12] Executives make *policy* decisions, senior management works out the *programming* of the policy, section heads (middle management) *interpret* the program, and skilled, semi-skilled and unskilled employees determine the *processes* to be used, the *operations* that constitute the process, and the *elements* of the operations.

Paterson has developed a series of six categories, called decision bands, which reflect these differences in kinds of decisions. The bands and their characteristics are shown in Table II. (Paterson's method also provides bases

TABLE II: DECISION BAND CHARACTERISTICS

Band	Kind of Decisions	Title	Characteristics
E	Policy-making	Executive	- responsible for the formation and adoption of departmental policies and priorities. - has input into the political decisions which affect the department. - errors in judgement would result in political embarrassment and/or seriously affect departmental performance. - makes top level organizational decisions.
D	Programming	Senior Management	- responsible for the planning and execution of departmental programmes. - some input into departmental policy and priorities. - development training or professional qualifications, and extensive experience normally required. - errors in judgement would seriously affect performance of the branch. - makes definitive decisions, within broad organizational objectives, at the functional level.
C	Interpretive	Middle Management	- decisions are based on clearly defined general policy, principles, or specific objectives. - decisions may have to be based on complex, incomplete information; judgement is required. - performance is reviewed iteratively rather than continuously. - development training, professional qualification or related experience usually required. - may supervise band O, A, B, or other band C employees. - errors in judgement may be costly, but their consequence is restricted to a limited sphere of human or material assets.
B	Routine	Skilled	- application of established operating policies to specific circumstances under readily available direction. - decisions must be based on directly applicable operating policy or clear precedent. - may supervise or assist in training band O, A or other band B employees. - may deal with the public. - there are usually backstop provisions to rapidly identify potentially costly errors. - may develop operating procedures or practices for lower level employees. - may need experience or specialized training.
A	Automatic	Semi-skilled	- little or no independent decision-making. - standardized practices and procedures performed under general work insturctions and supervision of progress and results. - very little or no supervisory responsibility. - experience or training usually limited to office procedure or the development of clerical skills. - the cost of errors is usually limited to wasted time or limited materials.
O	Defined	Unskilled	- works under detailed instructions or established work routines; closely supervised. - no autonomous decision-making, or simple decisions involving straightforward comparisons. - experience or training not required except basic clerical skills. - little or no opportunity for errors.

for grading and sub-grading within the bands, but these are not used in this study.) Since authority has already been defined as "the right to make decisions"[13] the Paterson method can also be used for classifying levels of authority.

The Paterson classification system has parallels in other job evaluation systems. Table III compares the decision bands to their counterparts in classification systems developed by the British Institute of Management (BIM), the Institute of Office Management (IOF), the U.S. Public Service (GS Schedule), Dr. Lucien Cortis (for Castellion Breweries), Dr. Jaques (Time-span method), and four of the categories of the Hay-MSL guide chart.[14] The Paterson method has been applied as the basis for pay scales with reported success by the Rhodesian Civil Service, was recommended by the British National Board of Prices and Incomes for the nursing profession, and has been experimented with by the British Steel Corporation.[15] In British Columbia, the method is used by the City of Kamloops.[16]

The method has some serious drawbacks, however, as a practical basis for job remuneration. Salaries must be adjusted to make allowance for such factors as labor scarcities in job classifications, overtime work by salaried employees, differences in working conditions, as well as numerous other matters which influence employee satisfaction but do not vary with authority. Especially in grading and sub-grading within decision bands, the system relies heavily

TABLE III: COMPARISON OF DECISION BANDS TO OTHER METHODS OF JOB EVALUATION

Bands	BIM Job Zones	IOM	US Pub. Serv. GS Schedule	Castellion	Jaques Time-Span Ranks	Hay-MSL Guide Chart			
						Skill Education Training	Breadth of Know-How	Problem Solving	Freedom to Act
E	I-II			14	5		V	H	H
D	III-IV		GS 14,15,16 17,18	13	4	G,H	IV	F,G	F,G
C	V-VII		GS 9,10,11 13	10-12	2-3	E,F	III	E	E
B	VI2-VII	F	GS 5,6,7,8	7-9	1	D	II	D	D
A		C,D,E	GS 2,3,4	4-6		C	I	C	C
O		A,B	GS 1	1-3		A,B		A,B	A,B
*Page Nos.	27	45-50	57	90	103	109-110	110	112	114

*Source: Paterson, *Job Evaluation*, 2 vols. (London: Business Books, 1972).

on subjective judgement by one person--the job analyst, and the system has not been enthusiastically received by organized labor. However, for purposes of this thesis, the method provides a usable scale for the measurement of authority.

F. Analysis of Spatial Decentralization

The information necessary for analysis of spatial distribution of authority is available from the departmental personnel offices. The job classification of each administrative employee in the branches studied is recorded with its location. A uniform system of job classification is used by the Public Service Commission, so that theoretically, individuals in different departments who have the same job classification have the same or similar levels of authority and responsibility. Officials at the Public Service Commission maintain consistency in the application of the classifications by periodic reviews of job descriptions and the actual work performed, and by scrutiny of classification appropriateness by the B.C. Government Employees Union. While some of the departmental personnel officers argue that there is more inconsistency than the Public Service Commission would like to admit, the classification system is the best method of comparing departmental delegation of authority short of in-depth analysis of branch and individual authority.

The general job classifications utilized in the Public Service of British Columbia have been assigned to decision

bands by a jury of three senior Public Service Commission officials.[17] The three individually assigned each of the administrative classifications to a decision band based on the band descriptions in Table II. They also had Paterson's book available, but only one of the jury members used this as an aid in assigning classifications to bands. When the decision band to which a classification was assigned varied, final assignment was made to the band which was the closest to a simple arithmetic average, thus each classification was categorized to a single band. Figure 2 shows a comparison of the frequency of assignment to each of the bands for each of the jury members. There was considerable agreement as to the assignments, with 88.5% agreed upon by two or more of the jury members, but with complete consensus on only 19.0%.

The classification of each administrative employee in each branch studied can be converted to the appropriate decision band, with employees in each branch aggregated by location and authority level in a matrix, as is illustrated in Table IV. In order to describe quantitatively the pattern of spatial decentralization, it is necessary to assign numerical value to the bands. Since there is no basis for such assignment provided by Paterson or by other decision theorists, various methods can be tried. The bands could be valued arithmetically, with O = 0, A = 1, B = 2, C = 3, D = 4, and E = 5; in geometric progression, with O = 0, A = 1, B = 4, C = 9, D = 16, and E = 25; or in cubic

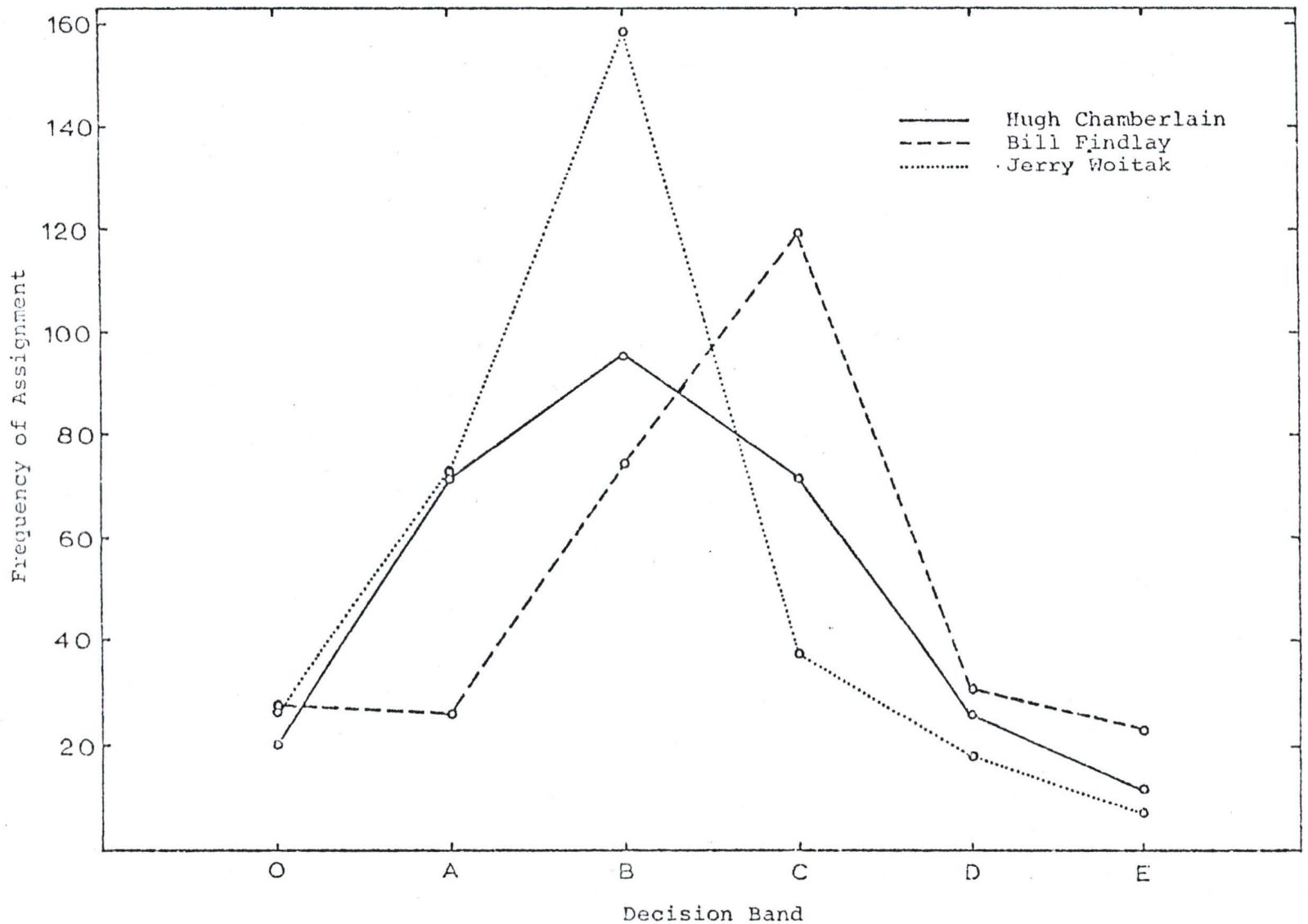


FIGURE 2. Comparison of jury assignments to decision bands.

TABLE IV: DISPERSION/SPATIAL DECENTRALIZATION MATRIX FOR A HYPOTHETICAL BRANCH

	Victoria	Vancouver	Regional Centres	Other Communities
Band E	1			
Band D	3		4	
Band C	8	1	3	3
Band B	7	2	5	6
Band A	12	10	9	16
Band O	4	2	9	
TOTALS	35	15	30	25

progression, with O = 0, A = 1, B = 8, C = 27, D = 64, and E = 125. Note that in all cases band O is assigned a zero value since this band aggregates employees with little or no authority to exercise discretionary judgement. The arithmetic and geometric methods seem to understate differences in decision bands (the difference in authority between an executive and a clerical worker appears to be greater than 5 to 1 or 25 to 1), therefore the cubic progression is the basis for analysis in the next chapter. These values are multiplied by the number of employees at each location in each band, and incorporated in a spatial decentralization matrix for each branch.

As with dispersion, three indices of spatial decentralization can be developed. Again, the first is the proportion outside Victoria (in this case, the proportion of the total

authority units in the branch); the second is the proportion outside Victoria plus Vancouver; and the third is developed from a linear regression line. In a manner similar to the index of dispersal, the slope of the regression line is converted to a 0 to 1.0 scale. In the sample given in Table IV, using cubic values for the bands, the index of decentralization using percentage outside Victoria is .49; outside Victoria-Vancouver, .45; and based on a least-squares regression line is .29

G. Comparison of Branches

The last step in the quantitative description of the spatial patterns of the public service administrative branches is to use the indices developed above as simple descriptions of the patterns for each branch, and to compare the branches. This can be done by using an index of dispersion and an index of spatial decentralization for each branch as co-ordinates to plot a point on a scatter diagram, and to analyze the pattern of 30 points on the graph. For the sake of consistency, dispersion is always on the X axis, and spatial decentralization is on the Y axis.

There are three methods of developing indices of dispersion, and three methods for indices of spatial decentralization, if only cubic values are used. Thus, there are a total of nine scatter diagrams possible using the indices that are produced. However, only three will be compiled

TABLE V: DISPERSION/SPATIAL DECENTRALIZATION MEASURES STUDIED

Spatial Decentralization	Dispersion		
	Outside Victoria	Outside Victoria-Vancouver	Linear Regression
GEOMETRIC:			
Outside Victoria	X		
Outside Victoria-Vancouver		X	
Linear Regression			X
CUBIC:			
Outside Victoria	X		
Outside Victoria-Vancouver		X	
Linear Regression			X

(see Table V). While other combinations also produce descriptions of the spatial patterns of the branches, they do not compare "like to like" with regard to measuring dispersion and spatial decentralization. It is not known which system provides the fairest basis for comparing branches, but since the linear regression method is the most sophisticated measure used (utilizing as it does three rather than two variables), it is suggested that this combination should be the most reliable indicator of spatial patterns.

There should be either a linear or curvilinear relationship between the two variables, although there may be large deviation from the expected values. If a branch has a .00 index of dispersal, then obviously it should also have .00 spatial decentralization. As dispersal increases, spatial

decentralization must increase (unless all dispersed employees are in the O decision band, which should be impossible since O level employees must, by definition, be closely supervised by an employee at a higher level). An appropriate line can be fitted to the scatter diagram, and a coefficient of correlation can be calculated. Branches below the line will be those with less than average authority per dispersed employee. If branches cluster on the scatter diagram according to their functional categories, it would seem to indicate that spatial pattern is determined by branch function. The geographic patterns of the branches in the sample are compared in the next chapter.

H. Footnotes

[1]British Columbia, Environment and Land Use Committee Secretariat, "Resource Management Regions Study: Distribution of Provincial Government Employment" (internal report, 1974).

[2]Davies, "Structural Change and Implicit Regional Development Policies."

[3]Ibid., section III.VI, page number unavailable.

[4]British Columbia is the only province for which this information is not reported in Statistics Canada's breakdown of employment by industry.

[5]For examples of this kind of study, see Great Britain, *Dispersal of Government Work in London* and Thorngren's study of the Swedish government reported by J. B. Goddard in "Contact Studies and Decentralization of Offices from London and Stockholm," in *Spatial Dimensions of Public Policy*, eds. J. T. Coppock and W. R. D. Sewell (Oxford: Pergamon, 1976).

[6]The number of branches is from British Columbia, *Estimates of Revenue and Expenditure, Fiscal Year Ending March 31, 1977* (Victoria: Queen's Printer, 1976). The estimate of the number of B.C. public servants was developed by the Government Employee Relations Bureau, and reported in Davies, "Structural Change and Implicit Regional Development Policies."

[7]For discussion of British Columbia's urban hierarchy, see L. S. Bourne and R. D. MacKinnon, eds., *Urban Systems Development in Central Canada* (Toronto: University of Toronto, Department of Geography, 1972). The identification of these cities as common departmental regional headquarters is from Davies, "Structural Change and Implicit Regional Development Policies."

[8]James G. Bowland, "Geographical Decentralization in the Canadian Federal Public Service," *Canadian Public Administration* 10 (September 1967):323-361; and J. E. Hodgetts, *The Canadian Public Service*.

[9]Data from ELUCS' 1974 survey summarized in Davies, "Structural Change and Implicit Regional Development Policies," Table III.VI, page number unknown.

[10]For comparisons of job evaluation techniques, see British Institute of Management, *Job Evaluation: A Practical Guide for Managers* (London: Management Publications, 1970); and Bryan Livy, *Job Evaluation: A Critical Review* (London:

George Allen & Unwin, 1975).

[11]Elliott Jaques, *Measurement of Responsibility: A Study of Work, Payment, and Individual Capacity* (London: Tavistock, 1956), p. 85.

[12]Paterson, *Job Evaluation*.

[13]See definition of authority in section 1-C.

[14]Paterson, *Job Evaluation*.

[15]Livy, *Job Evaluation*, p. 112.

[16]According to Hugh Chamberlain, Assistant Director of Classification Division, B.C. Public Service Commission.

[17]Bill Findlay, Director of Classification Division; Hugh Chamberlain, Assistant Director of Classification Division; Jerry Woitak, Organization Analyst, Public Service Commission.

CHAPTER III

DESCRIPTION OF SPATIAL PATTERNS: FINDINGS

A. *Data Gathering*

There was surprisingly little difficulty in gathering the information necessary to describe the spatial patterns of the B.C. Public Service, although a few complications did arise. After the sample of branches to be studied was developed there was a reorganization of departmental responsibilities, and a few of the branches in the sample were moved to other departments. One branch was merged with a counterpart in another department, so that the new organization is a combination of what had been two branches. There have also been some intra-departmental reorganizations since the sample was selected, but in most cases the changes are only in the names of the branches. In these cases the new organizational entity which performs the same function as a branch in the sample was studied, and the new names are used in this and later chapters.

Because the sample was taken from the government's 1976/77 *Estimates*, and this is compiled in a standardized format which does not necessarily coincide with the actual organization of the departments, two of the branches selected do not exist as independent organizational entities. These

are the departmental administration branches of the departments of Human Resources and Highways. These departments are organized in a manner which does not differentiate between departmental administration and program delivery personnel, and it was necessary to simulate "Departmental Administration and Planning" branches by including in the list of branch employees only those who primarily perform administrative duties. The breakdown of these agencies into "administrative branch" and "program delivery branch" employees was done by department personnel officers who were not familiar with the specific nature of this study.[1] It is felt that this procedure minimizes the danger of sample bias that could have resulted had these branches been excluded from the sample, and of possible bias had this researcher assisted in determining which employees were to be included.

One other problem emerged which was not as amenable to a simple solution. In conducting the analysis of spatial patterns it became obvious that one of the branches (Consumer Services; Corporate, Financial, and Regulatory Services) may have been misclassified into the Protection and Development of Human Resources category when it should have been considered as a Regulatory Agency. Since the discrepancy was brought to this researcher's attention because of the branch's rather unusual spatial pattern (unusual compared to other Human Resources or Regulatory branches), it is not felt that it is appropriate to remove this branch from either

the sample or the sample category. Since many of the branches will be discussed as special cases for other reasons, this branch is left in its original sample category, and will be discussed later.

B. Patterns of Dispersion

The sample of branches contained a variety of patterns of spatial distribution of employees. Table VI summarizes the dispersion data from the worksheets in Appendix B. Note that this sample of administrative branches is less dispersed than is the Public Service as a whole. All branches sampled had their headquarters in either Victoria or Vancouver, with Victoria by far the more prevalent location. For each branch, the three types of indices of dispersion are shown. The first of these gives the proportion of employees located outside the Greater Victoria area. Note that four branches are entirely located in Victoria, and two others have less than 5% of their staff outside the provincial capital. Only one branch has no staff in Victoria. Of all the employees in the 30 branches sampled, 55% are located in Victoria (as compared to 9% of the B.C. population).

The second index shows the proportion of employees located outside Victoria and the Lower Mainland area. In the branches sampled, 75% of all employees are in these two urban areas. This compares to 56% of the B.C. population which lives in these communities. Ten of the branches have

TABLE VI: INDICES OF DISPERSION AND BRANCH HEADQUARTERS LOCATIONS

Branch	Headquarters Location	Outside Victoria Method	Outside Vic/Van Method	Linear Regression Method
1. Attorney General; Administration & Support	Victoria	.29	.00	.00
2. Environment; General Administration	Victoria	.00	.00	.00
3. Highways; Executive & Support	Victoria	.58	.46	.38
4. Human Resources; Central & Program Administration	Victoria	.19	.09	.07
5. Labor; Departmental Administration & Support	Victoria	.21	.00	.00
6. Recreation; General Administration	Victoria	.00	.00	.00
AVERAGE: Departmental Administration & Planning Branches		.35	.23	.19
7. Attorney General; Legal Services to Government	Victoria	.00	.00	.00
8. Finance; Controlling & Audit	Victoria	.17	.00	.00
9. Finance; Purchasing Commission	Victoria	.26	.00	.00
10. Public Works; Construction of Public Buildings	Victoria	.02	.00	.00
11. Public Service; Public Service Commission, Administration	Victoria	.25	.17	.12
12. Public Service; Queen's Printer, Administration	Victoria	.00	.00	.00
AVERAGE: Services to the Public Organization Branches		.14	.03	.02
13. Agriculture; General & Financial Services	Victoria	.54	.52	.48
14. Attorney General; Land Registry	Vancouver	.80	.30	.17
15. Environment; Water Resources	Victoria	.42	.36	.19
16. Forests; Forests Protection	Victoria	.72	.61	.42
17. Forests; Range Management	Victoria	.83	.83	.60
18. Mines & Petroleum; Petroleum Resources	Victoria	.19	.19	.19
AVERAGE: Resource Management & Protection Branches		.64	.40	.27
19. Consumer Services; Community Programs	Victoria	.14	.09	.05
20. Consumer Services; Corporate, Financial, Regulatory	Vic / Van	.36	.00	.00
21. Health; Hospital Programs	Victoria	.04	.02	.01
22. Labor; Job Training & Employment	Vancouver	.86	.14	.07
23. Public Service; Provincial Emergency Program	Victoria	.44	.33	.21
24. Recreation & Conservation; Library Service	Victoria	.54	.39	.32
AVERAGE: Development & Protection of Human Resources Branches		.35	.08	.05
25. Agriculture; Special & Regulatory Services	Victoria	.85	.67	.60
26. Consumer Services; Liquor Control & Licensing	Victoria	.43	.18	.13
27. Consumer Services; Trade Practices	Victoria	.49	.24	.12
28. Highways & Public Works; Safety Inspections	Vancouver	.92	.47	.37
29. Transportation & Communication; Engineering	Vancouver	1.00	.18	.14
30. Transportation & Communication; Weight Scale	Victoria	.96	.80	.72
AVERAGE: Regulatory Agencies		.85	.54	.45
TOTALS: All Branches in Sample		.45	.25	.19

no personnel outside Greater Victoria and the Lower Mainland, and three others have fewer than 5% of their employees outside these communities.

FIGURE 3. Cumulative distribution of B.C. population, total provincial government employees, and employees in sample.

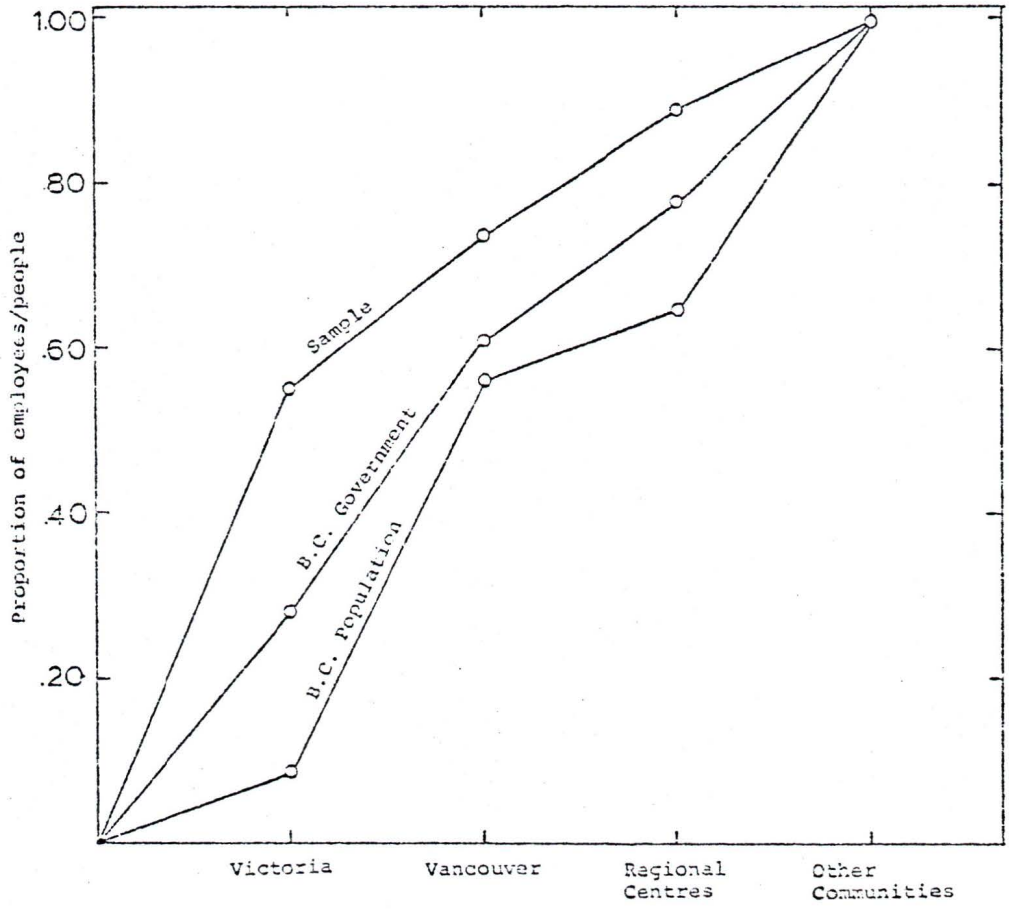


Figure 3 shows a comparison of the employees in the sample to the total employees in the provincial public service and to the total B.C. population. The distribution of total government employment is somewhat similar to the distribution of population, although with more than proportionate numbers of employees in Victoria and the regional centres,

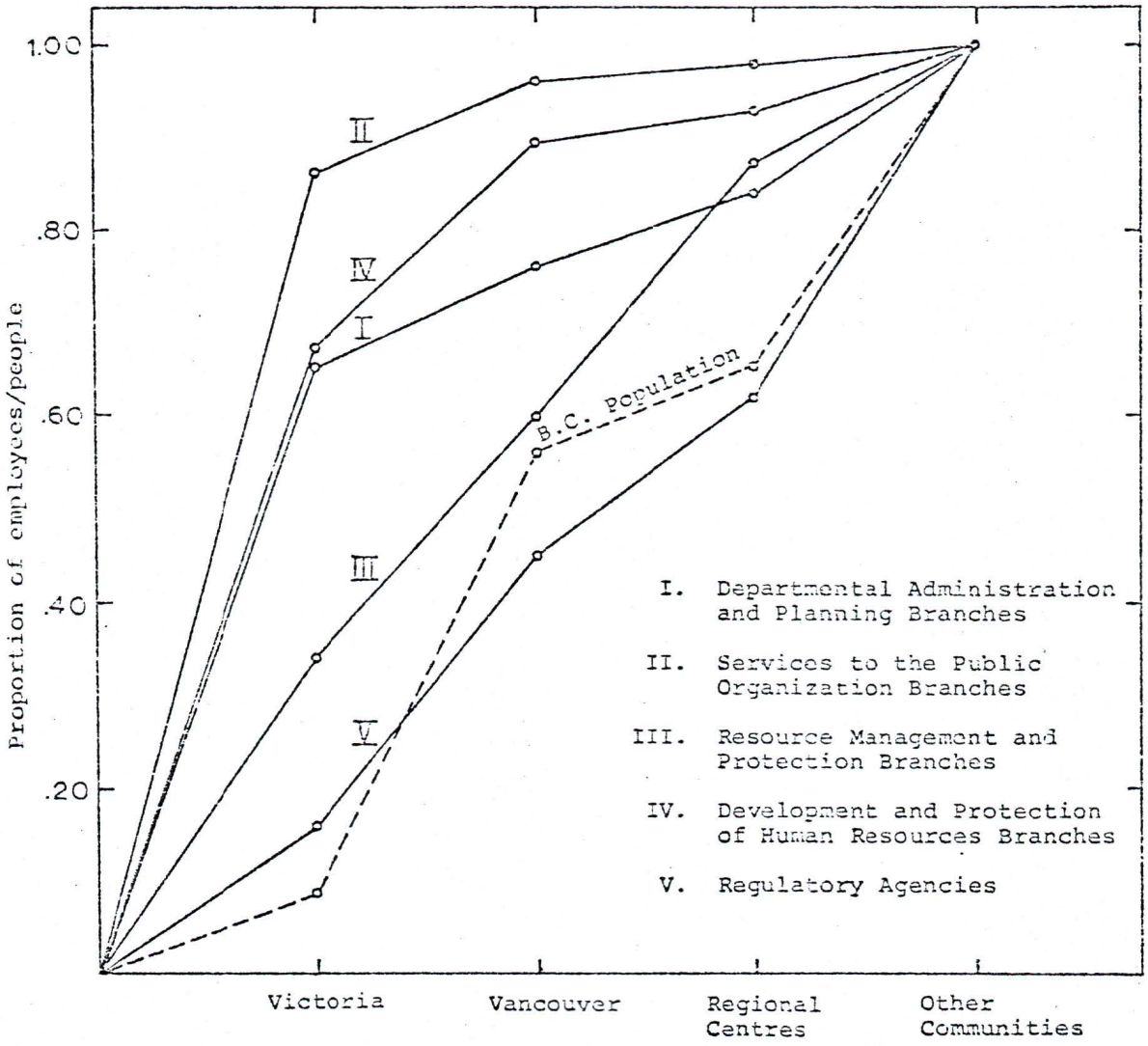
and a less than proportionate number of employees in Vancouver and the other communities. The distribution pattern from the sample bears no apparent resemblance to the other two patterns. Comparing this sample to the entire public service seems to show that while administrative personnel are concentrated in Victoria, non-administrative employees (as defined in chapter I) tend to be distributed more proportionately to population. This concentration of administrative employees is particularly strong in three of the functional categories (see Figure 4) and found in a more moderate form in one other. Only one of the functional categories (number V, Regulatory Agencies) more closely resembles the distribution pattern for the population.

The linear regression method index of dispersion verifies this concentration of administrative employees. The index for the sample is .19, while the comparable figures for the total population and the entire public service are .39 and .32 respectively, indicating that the sample is somewhat less dispersed than either the total public service or the population of British Columbia.

C. Patterns of Decentralization

Before looking at the patterns of spatial decentralization, it is interesting to examine first the non-spatial distribution of authority in the branches studied. Remember that decentralization was defined as the pattern of alloca-

FIGURE 4. Comparison of cumulative dispersion by functional category.



tion of decision-making authority in an organization, while spatial decentralization refers to the geographic pattern of such delegated authority. Table VII compares the average authority-units/individual in each branch, and in each functional category. The ramifications of the differences between branches will be discussed more thoroughly in chapter IV, but generally speaking a low average authority-units/individual (AU/I) indicates low decentralization, or high centralization. The AU/Ls vary from 1.5 for the Department of Transport and Communication's Weigh Scale Branch to 25.5 for the Forests Protection Branch. The averages of each of the functional categories are comparatively consistent, ranging from 8.7 to 13.0, and there are low and high branches in each category (with the exception of the Development and Protection of Human Resources branches which are consistently moderate). This would seem to indicate that there is little inherent difference in the possibility for decentralization between the various functional categories. For example, it is not possible to conclude that Resource Management branches *must* be decentralized even though this functional category has the highest average decentralization, since one of the branches in this category had an AU/I of only 3.4.

The above discussion does not consider the *spatial* distribution of authority. The six indices of spatial decentralization for each branch are shown in Table VIII. As with decentralization of authority there is considerable

TABLE VII: AVERAGE AUTHORITY-UNITS PER INDIVIDUAL, BY BRANCH AND FUNCTIONAL CATEGORY (USING CUBIC DECISION-BAND VALUES)

Branch	Total Employees	Authority Units	Average AU/I	Total Employees	Authority Units	Average AU/I
1	98	903	9.2			
2	65	1024	15.8			
3	516	7615½	14.8			
4	386	3245½	8.4	— 1168	13,850	11.9
5	52	315	6.1			
6	51	750	14.7			
7	43	763	17.7			
8	162	2251	13.9			
9	93	295	3.2			
10	163	1853	11.4	— 591	6,730	11.4
11	103	1390	13.5			
12	27	178	6.6			
13	61	1019	16.7			
14	285	1542	3.4			
15	130	1849	14.2			
16	98	2398	24.5	— 673	8,774	13.0
17	41	605	14.8			
18	58	1361	23.5			
19	22	204	9.3			
20	207	1947	9.4			
21	220	2569	11.7			
22	110	1273	11.6	— 644	6,587	10.2
23	39	272	7.0			
24	46	322	7.0			
25	105	1320	12.6			
26	44	377	13.1			
27	37	276	7.5			
28	205½	1963	9.6	— 548½	4,770	8.7
29	22	433	19.7			
30	135	201	1.5			

variation in spatial decentralization between branches, with indices (linear regression, cubic method) ranging from .00 to .58, but unlike non-spatial decentralization of authority

TABLE VIII: INDICES OF SPATIAL DECENTRALIZATION

Branch	Outside Victoria		Outside Vancouver		Linear Regression	
	Geom.	Cubic	Geom.	Cubic	Geom.	Cubic
1. Attorney General; Administration & Support	.33	.28	.00	.00	.00	.00
2. Environment; General Administration	.00	.00	.00	.00	.00	.00
3. Highways; Executive & Support	.51	.48	.41	.38	.32	.28
4. Human Resources; Central & Program Administration	.14	.10	.04	.01	.03	.01
5. Labor; Departmental Administration & Support	.25	.25	.00	.00	.00	.00
6. Recreation; General Administration	.00	.00	.00	.00	.00	.00
AVERAGE: Departmental Administration & Planning Branches	.34	.31	.23	.21	.18	.16
7. Attorney General; Legal Services to Government	.00	.00	.00	.00	.00	.00
8. Finance; Controlling & Audit	.33	.32	.00	.00	.00	.00
9. Finance; Purchasing Commission	.29	.28	.00	.00	.00	.00
10. Public Works; Construction of Public Buildings	.02	.02	.00	.00	.00	.00
11. Public Service; Public Service Commission Administration	.23	.20	.16	.14	.12	.11
12. Public Service; Queen's Printer, Administration	.00	.00	.00	.00	.00	.00
AVERAGE: Services to the Public Organization Branches	.17	.17	.05	.03	.03	.02
13. Agriculture; General & Financial Services	.45	.36	.44	.36	.40	.33
14. Attorney General; Land Registry	.79	.80	.32	.34	.17	.19
15. Environment; Water Resources	.45	.47	.39	.41	.20	.21
16. Forests; Forests Protection	.74	.75	.64	.63	.44	.44
17. Forests; Range Management	.63	.50	.63	.50	.44	.34
18. Mines and Petroleum; Petroleum Resources	.14	.13	.14	.13	.14	.13
AVERAGE: Resource Management & Protection Branches	.59	.54	.45	.41	.31	.28
19. Consumer Services; Community Programs	.00	.00	.00	.00	.00	.00
20. Consumer Services; Corporate, Financial & Regulatory	.43	.41	.00	.00	.00	.00
21. Health; Hospital Programs	.03	.02	.02	.01	.01	.01
22. Labor; Job Training & Employment	.86	.86	.12	.09	.06	.05
23. Public Service; Provincial Emergency Program	.20	.15	.11	.09	.08	.06
24. Recreation & Conservation; Library Service	.45	.41	.31	.29	.24	.23
AVERAGE: Development & Protection of Human Resources Branches	.34	.32	.05	.04	.03	.03
25. Agriculture; Special & Regulatory Services	.76	.65	.66	.58	.59	.53
26. Consumer Services; Liquor Control & Licensing	.48	.39	.22	.18	.14	.11
27. Consumer Services; Trade Practices	.48	.44	.31	.29	.16	.15
28. Highways & Public Works; Safety Inspections	.91	.91	.40	.27	.31	.20
29. Transportation & Communication; Engineering	1.00	1.00	.10	.06	.08	.05
30. Transportation & Communication; Weigh Scale	.90	.81	.75	.68	.69	.58
AVERAGE: Regulatory Agencies	.81	.75	.45	.34	.37	.28
AVERAGE: TOTAL SAMPLE	.43	.39	.25	.21	.19	.15

there is also considerable difference between the averages of the functional categories, implying that there may be inherent differences in the potential for spatial decentralization between the categories. The Services to the Public Organization, Development and Protection of Human Resources, and Departmental Daministration and Planning branches (with the exception of Department of Highways, Executive and Support Services and the Library Services branches) all are centralized in Victoria and Greater Vancouver, while the other two categories, with the exception of one branch, are more spatially decentralized.

The indices developed by using values for the decision bands based on a cubic progression are consistently lower than those using a geometric progression. Since the cubic values accentuate differences in band assignments giving proportionately more authority-units to the higher levels, this would appear to indicate that there is a lower average level of authority per person in the dispersed locations than in Victoria and the Lower Mainland. This is verified by comparison of the average AU/Is for each branch in Victoria and the Lower Mainland, and the regional centres and other communities. This comparison is shown in Table IX. Only four branches, three of which are in the Resource Management and Protection category, have higher levels of authority in the dispersed locations.

TABLE IX: AVERAGE AUTHORITY-UNITS PER INDIVIDUAL: CENTRAL VERSUS DISPERSED LOCATIONS

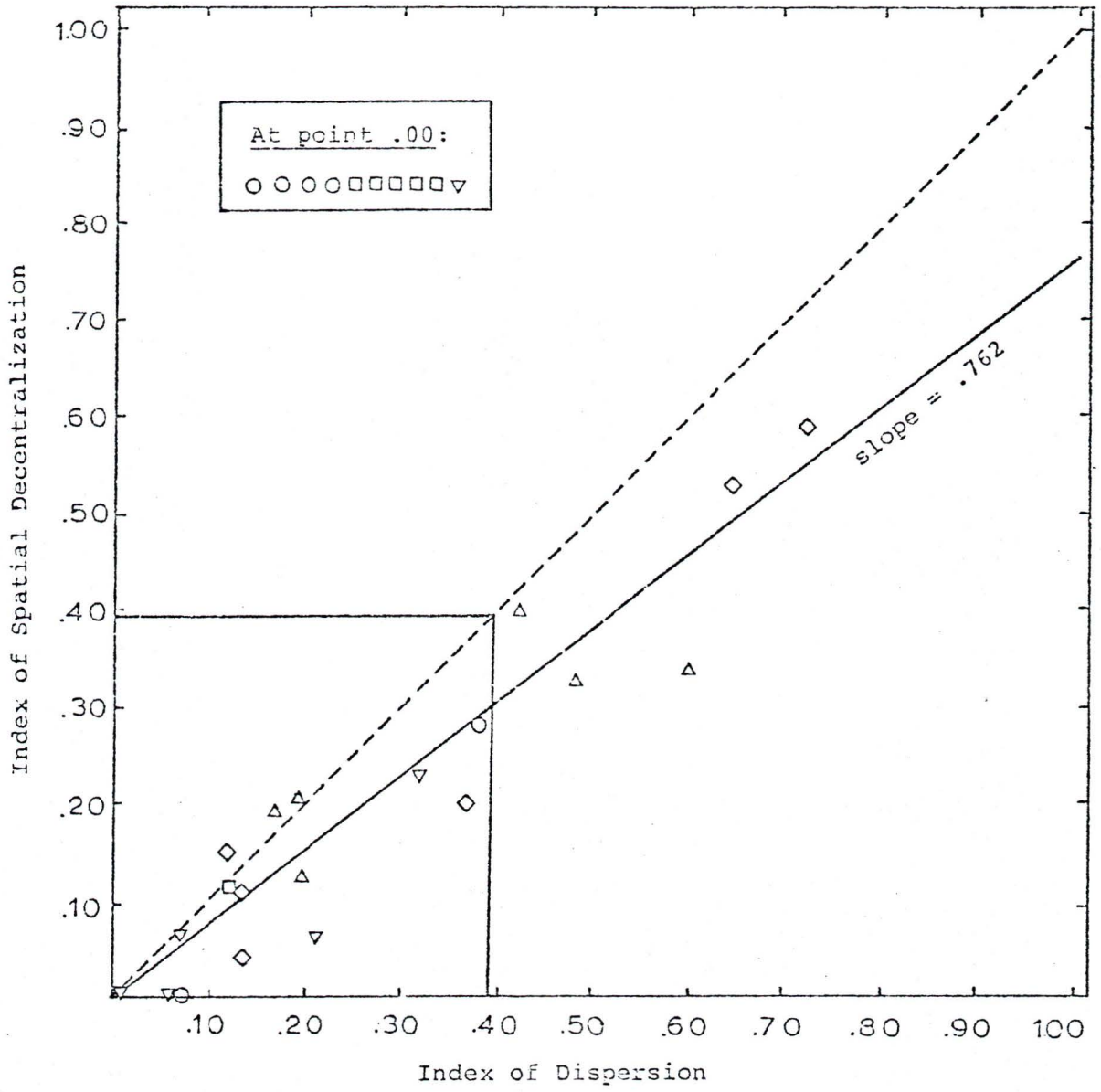
Branch	Victoria Vancouver	Regional Centres & Other Communities	Difference
1. Attorney General; Administration & Support	9.3	--	--
2. Environment; General Administration	15.8	--	--
3. Highways; Executive & Support	17.1	12.1	- 5.0
4. Human Resources; Central & Program Administration	9.1	1.2	- 7.9
5. Labor; Departmental Administration & Support	6.1	--	--
6. Recreation; General Administration	14.7	--	--
7. Attorney General; Legal Services to Government	17.7	--	--
8. Finance; Controlling & Audit	13.9	--	--
9. Finance; Purchasing Commission	3.2	--	--
10. Public Works; Construction of Public Buildings	11.4	--	--
11. Public Service, Public Service Commission Administration	13.8	11.8	- 2.0
12. Public Service; Queen's Printer Administration	6.6	--	--
13. Agriculture; General & Financial Services	22.6	11.3	-11.3
14. Attorney General; Land Registry	5.1	6.1	+ 1.0
15. Environment; Water Resources	13.1	16.2	+ 3.1
16. Forests; Forests Protection	23.5	25.1	+ 1.6
17. Forests; Range Management	43.4	8.9	-34.5
18. Mines and Petroleum; Petroleum Resources	25.2	16.1	- 9.1
19. Consumer Services; Community Programs	10.2	0.0	-10.2
20. Consumer Services; Corporate, Financial, Regulatory	9.4	--	--
21. Health; Hospital Programs	11.7	8.0	- 3.7
22. Labor; Job Training & Employment	12.2	7.9	- 4.3
23. Public Service; Provincial Emergency Program	9.6	1.9	- 7.7
24. Recreation & Conservation; Library Services	8.1	5.2	- 2.9
25. Agriculture; Special & Regulatory Services	15.9	10.9	- 5.0
26. Consumer Services; Liquor Control & Licensing	13.2	12.8	- 0.4
27. Consumer Services; Trade Practices	7.0	9.0	+ 2.0
28. Highways & Public Works; Safety Inspections	13.2	5.5	- 7.7
29. Transportation & Communication; Engineering	22.7	6.3	-16.4
30. Transportation & Communication; Weigh Scale	2.4	1.2	- 1.2

D. Dispersion/Spatial Decentralization Graphs

With the indices of dispersion and spatial decentralization calculated, the next step is to plot the branches on a dispersion/spatial decentralization graph. This was done for each of the six combinations of indices studied,[3] but the different graphs substantially repeat similar information. Only one of these graphs, that using cubic band values and the linear regression method is discussed in this section. This graph is shown in Figure 5, and the other graphs are included in Appendix C.

There appears to be a positive linear correlation between the two variables (dispersion and spatial decentralization) that can be described by the equation $y = .762x - .002$, shown as a solid line on the graph. If average authority per individual in dispersed offices was the same as that in the Victoria and Lower Mainland offices, the least squares line would be a 45° slope on the graph (as illustrated by the broken line). This repeats the relationship demonstrated in Table IX, that only a few branches have authority proportionate to personnel in the field offices. This is not altogether surprising, but it is significant. The few branches that do have proportionate, or greater than proportionate authority in the field offices, indicate that spatially centralized administration is neither inherent in a hierarchical organization, nor inherent in the measurement system used.

FIGURE 5.
Dispersion/spatial decentralization graph using linear regression and cubic band values.

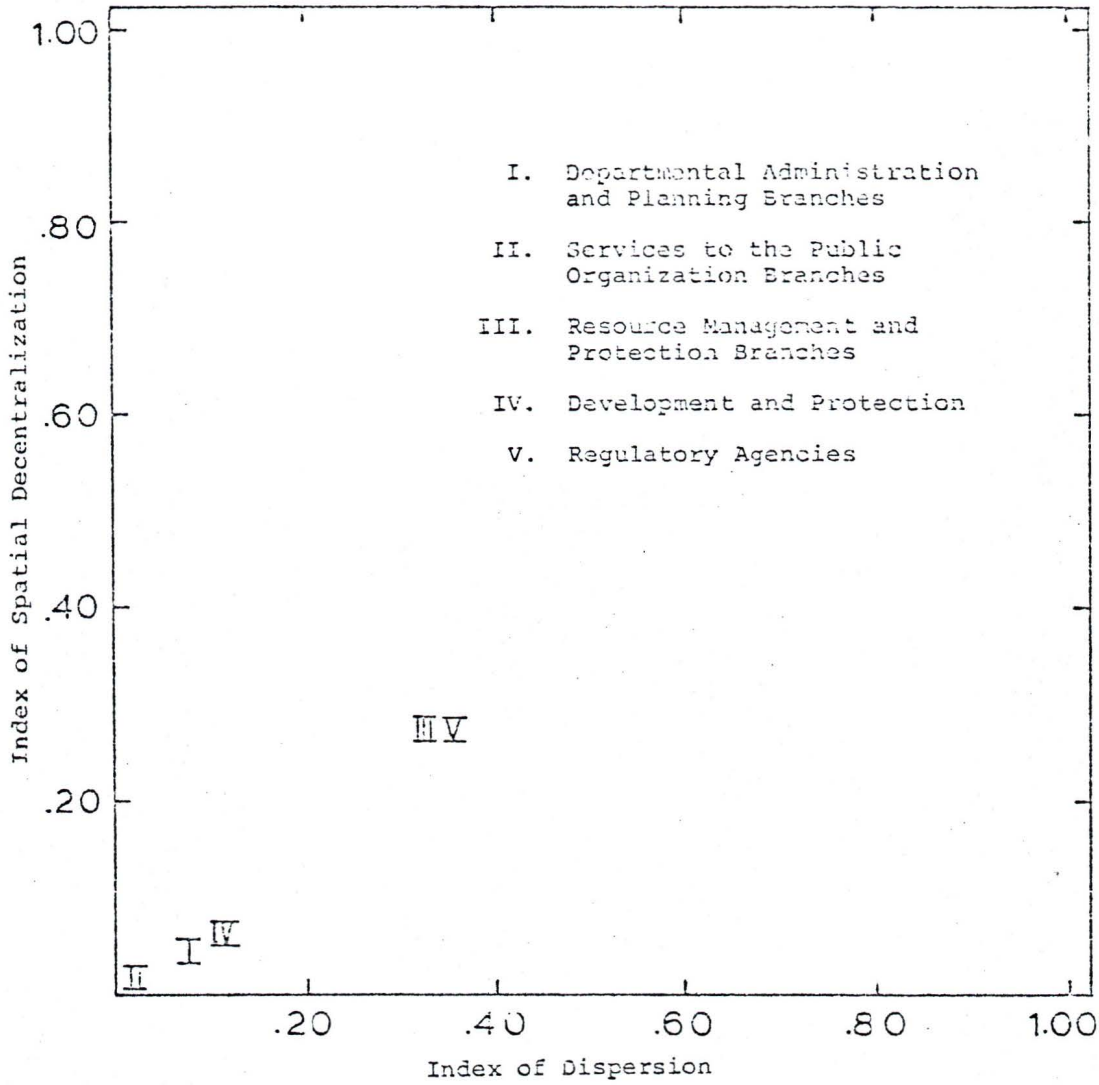


○ = Functional category I
□ = Functional category II
△ = Functional category III
▽ = Functional category IV
◇ = Functional category V

If a branch's personnel and authority were distributed in the province proportionately to population, the indices of dispersion and spatial decentralization (linear regression method) would be .39 (which is the index of dispersion for B.C.'s population).[4] Branches enclosed in the OABC box on the graph are those that are dispersed and spatially decentralized less than proportionately to population. Five branches are more dispersed than population, but in only three is authority spatially decentralized at or above this level.

It had been expected that the points plotted for each branch might cluster according to functional category. Examination of the graph indicates that there is a slight tendency to cluster, for example, the pattern of the Services to the Public Organization branches is clearly less dispersed and decentralized than that for the Resource Management branches, but it is not possible to enclose the clusters into mutually exclusive groupings. If the centroids for each of the functional categories are plotted (as in Figure 6) a distinction between the Resource Management and Regulatory branches and the other categories becomes apparent. As was observed in the previous section, these two groupings differ significantly in spatial pattern from the other three categories.

FIGURE 6. Dispersion/spatial decentralization graph of functional category averages.



E. Concentrated/Spatially Centralized Branches

Ten branches have no personnel outside the Victoria and Greater Vancouver areas, and four others have indices of dispersion and spatial decentralization of less than .10. Four of these fourteen have personnel only in Victoria, but most have operations in both urban areas. All except two are headquartered in the capital city and one of these two

has split headquarters in Victoria and Vancouver. Of the four branches with employees outside these two urban areas, three are dispersed to the regional centre level only. Of the ten branches with employees in both Victoria and Vancouver, the average AU/Is for both cities are comparable (9.8, Victoria; 11.0, Vancouver).

Ten of the fourteen are in the "Departmental Administration and Planning" and "Services to the Public Organization" categories, and the other four are "Protection and Development of Human Resource" branches. Of the first ten, only one, the Department of Resources' Central and Program Administration Branch, has any staff in the regional centres or other communities. This department is organized along what Hodgetts calls the "integrated-unitary model."[6] In other words, the work of the department is spatially dispersed, and the organizational hierarchy parallels regional and district jurisdictions, with field management officials considered as part of the core of departmental administration (as distinct from forming a separate "field operations" branch). This pattern is unusual for the B.C. Public Service, where generally field operations are treated as just one aspect of the departments' business. In the Department of Human Resources, field managers, administrators, and clerical personnel (but not program delivery personnel, such as social workers) are considered to be in "Departmental Administration and Planning." Even so, these field officials

appear to have little discretionary authority, since policy guidelines are clearly and thoroughly established at headquarters. It should be noted that the ratio of administrative to program delivery staff in the field offices is also quite low.

One branch, Consumer Services' Community Programs Branch, has only three employees outside of Victoria, and all of these are band 0. Since it is impossible by definition, for band 0 employees to work without close supervision, these are either misclassified or they are supervised by employees from another branch. The latter appears to be the case. Only two branches of the Department of Consumer Services were included in the sample, and both are entirely located in Victoria and Greater Vancouver.[7] This concentrated/spatially centralized pattern appears to be primarily due to the newness of the department, and field offices are gradually being established, starting in the larger urban areas.

The Hospital Programs Branch is concentrated in Victoria, with both indices being .01. This is because the role of the branch is not one of program delivery, but rather provincial administration. The bulk of the responsibility and authority for delivery of hospital programs is at the individual hospital level, in the hands of Hospital Boards, Regional Districts, and the administrators and boards of individual institutions. The role of this branch is to disburse funds

to the hospitals and local authorities, and 99.2% of the branch's budget is allocated to operating and capital grants. Thus, administration of delivery of the service that this branch is associated with is much more dispersed and decentralized than it appears, but this is accomplished through devolution to semi-autonomous local authorities rather than through delegation within the provincial public service.

The one branch which presents an anomaly as to why it is so concentrated is the Department of Labor's Job Training and Employment Opportunities Branch. The bulk of this group's employees are involved in program delivery; in fact, about one-half of them are apprenticeship counsellors. One would expect that the need for such counselling would be distributed through the province approximately proportionately to population, yet this branch has only 14% of its personnel in the regional centres, and none in the smaller communities. This branch does co-ordinate efforts with a counterpart in the Department of Education, and perhaps more of the field responsibilities are allocated to this other department, but in discussions with Department of Labor personnel, no reason was given for this branch's concentration in Victoria and Greater Vancouver.

F. Dispersed/Spatially Decentralized Branches

The sixteen remaining branches, with indices of dispersion and spatial decentralization greater than .10, vary

considerably in spatial pattern. Twelve of the sixteen are "Resource Management and Development" and "Regulatory Agencies," accounting for all of the branches in these two functional categories. Thus, it would appear that the nature of these two categories dictates that some dispersal and spatial decentralization must take place. In these two categories the differences in authority level between headquarters and the field offices varies more than in the other three categories and in four of the twelve branches the authority units per individual in the regional centres and smaller communities are higher than in Victoria and Greater Vancouver (see Table IX). Consequently, depending on the specific duties of the branches, it appears that the roles of the field offices in these categories tend toward the extremes of either lower level clerical information processing with little discretionary judgement exercised in the field, or the exercise of fairly high level discretionary judgement by senior level personnel. These extremes are epitomized by the Department of Transportation and Communication's Weigh Scale Branch, where 96% of the field employees are band A and all others are band B, and the Forest Protection Branch which has 80% of its band C level or higher employees away from its Victoria headquarters, or the Petroleum Resources Branch, which has an executive level (band E) employee in Charlie Lake.

It is rather surprising that only two of the six "Development and Protection of Human Resources" branches have larger than token field administration structures. The four which are not dispersed were all discussed in the previous section. The Library Services Branch is distributed approximately proportionate to population, and this seems to be appropriate to the role of that branch. The Provincial Emergency Program is concentrated in Victoria and the regional centres. The Public Service Commission Administration Branch (a "Services to the Public Organization" branch) was only just barely dispersed and spatially decentralized enough to not be categorized as a concentrated/spatially centralized branch as were the others in its category.

The departmental administration branch of the Department of Highways is organized along similar lines to that of the Department of Human Resources, except that considerably more discretionary judgement is expected of administrators in the service districts and regions. Within limits of an overall budget and general policy guidelines, managers of district offices make decisions as to the allocation of their resources in response to local conditions without seeking the approval of their superiors. Officials of the Department of Highways claim that this branch has more discretionary authority in the field offices than any other department, and this researcher found no evidence to the contrary. The branch has an executive level (band E) manager in each of the

regional centres and one in the smaller community of Terrace (which is one of their regional headquarters). The personnel of this branch is dispersed almost exactly proportionately to population in the province, with a linear regression index of .39, although its index of spatial decentralization is only .28. This is also the largest branch studied, with 516 employees.

G. Changes in Spatial Patterns

Although this study is meant to present a static picture of spatial patterns in the public service, it is recognized that such patterns are the product of continuing administrative and political processes of distribution and adaptation. The next three chapters will discuss various factors which influence and are influenced by the distribution of administrative personnel and authority. However, before examining these factors, it may be useful to give a broad overview of the changes in distribution patterns which have taken place over time, and which are now taking place. Most of the information in this section was gathered through informal interviews with administrators in the government, and represents their impressions and perceptions of change.

The Province of British Columbia was originally made up of two British Crown Colonies, with capitals in Victoria and New Westminster. When they were merged, Victoria was selected as the provincial capital, and administration was consolidated

in that city. The government was very centralized in Victoria at that time, in spite of the primitive communication and transportation systems. Field operations were generally handled by travelling government employees who were based in Victoria. As the dispersed settlements gained stability and permanence, government agents were assigned to specific communities. At first, with the exception of law enforcement, surveying, and other specialities, the provincial government was represented in the dispersed communities by a single "government agent." The government agent administered all matters pertaining to the provincial government, and was expected to deal with each of the central departments, although his primary responsibility was the collection of taxes, and officially he was assigned to the Department of Finance. This system, in a modified form, continues to exist today, and government agents represent the government in 51 communities.[8] This system in Canada is unique in British Columbia, and in many ways represents an organizational "dinosaur" reflecting the administrative patterns of British colonial rule of the Victorian era. The government agents, in addition to their Department of Finance duties, seem to function as provincial "ombudsmen" in the more remote communities of the province.

As Vancouver has developed as the dominant urban centre of the province, many branches and parts of branches have been moved to that city. Originally these were units that

handled the more routine functions. In interviews with many provincial administrators (only those based in Victoria were interviewed, however) it was stated that they felt that more and more there is a tendency for higher level decision-making functions to move to that city. The movement process was particularly rapid in the early 1970s, but generated little concern because the provincial government was expanding rapidly under the NDP administration. Recently, with a softening of the provincial and local economy, Victoria residents have started to become more aware and concerned about this movement of jobs away from their city.[9]

There is a general feeling among the administrators interviewed that this movement of offices to Vancouver will continue, but that its effects may be somewhat counterbalanced by a continuing trend toward more centralization of authority to the highest administrative and political levels of government. This movement toward greater centralization brings authority to Victoria where most of the higher level administrators, and all of the ministers' offices are located. This trend seems to have accelerated recently due to particularly stringent budget controls since 1974, and in spite of government rhetoric advocating "decentralization."

H. Footnotes

[1]They had been assigned the task by their supervisors, who were of course aware of the nature of the study.

[2]British Columbia, ELUCS, "Resource Management Regions Study"; and Canada, Statistics Canada, "Census 1976: Population by Census Divisions and Subdivisions" (Publication No. 92-805, June 1977).

[3]As shown in Table V and its accompanying text.

[4]Statistics Canada, "1976 Census." Figures shown in Appendix C.

[5]Using unweighted averages. Figures shown in Appendix C.

[6]Hodgetts, *Canadian Public Service*, chapter ten.

[7]Except two band O employees in Kamloops and Prince George.

[8]British Columbia, Public Service Commission, Staff Training Division, *Organization of the B.C. Public Service: 1977-1978* (Victoria: Public Service Commission, 1977). See the section on the Department of Finance.

[9]See, for example, "Mair, Barber Clash on Transfers," *Victoria Times*, 23 November 1977, p. 20; and *Monday Magazine*, Special Supplement: Victoria's Economy, 31 January 1977.

CHAPTER IV

DECISION-MAKING AND DELEGATION OF AUTHORITY

A. *Introduction*

Chapters II and III discussed the method and findings of an analytic description of the spatial patterns of dispersal and spatial decentralization in the B.C. Public Service. The next two chapters are concerned with the theoretical aspects of the development of these spatial patterns. This chapter is concerned with non-spatial aspects of decision-making and delegation of authority within a bureaucracy, and Chapter V adds a spatial dimension to this discussion.

While it is recognized that the spatial and organizational distribution of staff and authority are influenced by personal and political factors, these chapters will describe organizational behavior under assumptions of rationality similar to those used in the study of economic behavior. Thus, in these next two chapters it is assumed that personnel and authority are distributed in such a manner as to achieve organizational objectives as effectively and efficiently as possible. The organization is also assumed to be performing solely administrative (information processing) tasks, all of which relate to the making of decisions. In

other words, this theoretical discussion relates to the "perfect form" of an administrative organization.

B. Definition of Decision-Making

Organizational decision-making is the process of selecting from among alternatives the action which will be taken by the organization.[1] The decision-maker acts in the name of the organization, and must be empowered to so act. This is done through the delegation of authority. As defined in chapter I, authority is the right of an individual to make decisions on behalf of the organization, such rights having been consciously delegated to that individual by merit of his or her position in the organization. Decision-making is, therefore, the exercising of authority. It is possible for an individual to make organizational decisions without properly delegated authority, and in many cases such unauthorized actions may be necessary to the effective performance of the organization,[2] but for the purposes of this analysis it is assumed that all organizational behavior is determined by the exercise of authority.

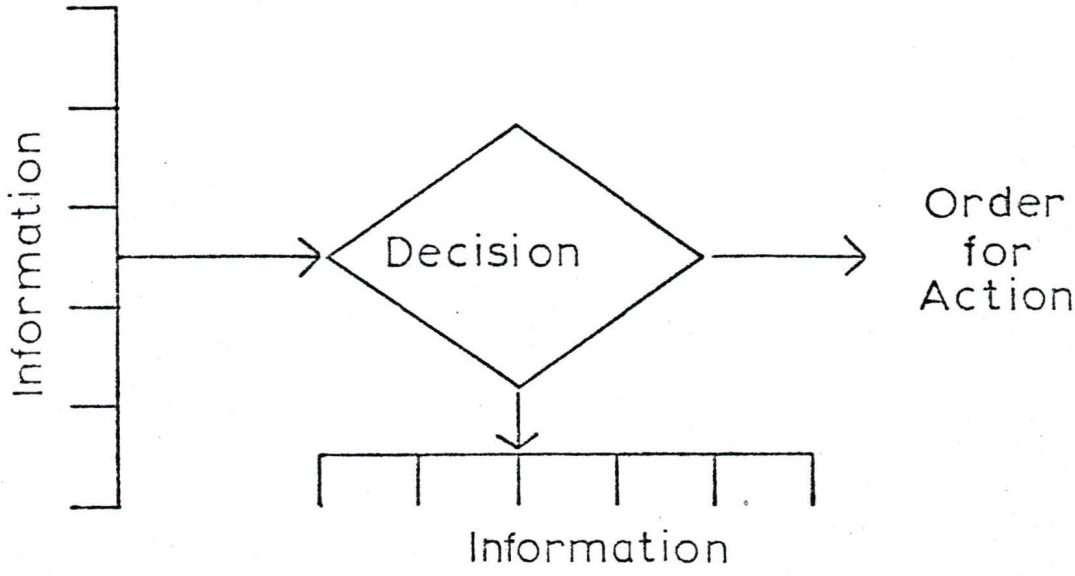
In the strict application of the above definition of authority, the decision-maker must select from among alternatives. In other words, he must have a choice of actions to select from. In many situations the actions of organizations are pre-determined responses to anticipated stimuli. In these cases the agent for the organization who initiates

the action does so not as a choice from among alternatives, but by application of a rule, regulation or policy which determines what the appropriate response is to be. Hence, the "decision" as to what action is to be taken has already been made before the situation arises, and usually has been made by someone other than the person who initiates the organizational action. Such pre-determined responses are loosely called "policies," and the person who applies the policy is, strictly speaking, not making a decision but processing information. However, many authors include such action-initiation under their definitions of decision as "programmed decisions," and this analysis will also include these as a lower order form of decision-making.[3]

C. Decision-Making Model

Both programmed and non-programmed decisions can be diagrammed in a similar manner (see Figure 7) using the familiar social science "black box." The input to the decision is information. Often this information is data which have been specifically prepared for such decision-making, but input information also includes the "background" which the decision-maker applies to the task. The primary output of the decision process is the decision, or more accurately, the instruction that an action is to take place (or that inaction is to result). Notice that the output is not the action itself, but is another form of information, to be

FIGURE 7. Decision inputs and outputs.



communicated to others or to be acted upon by the decision-maker. Thus the decision process creates new information which may be used in making other decisions. The original information is not destroyed by the process, so it too is an output (other models might consider it to be a catalyst) in the system.

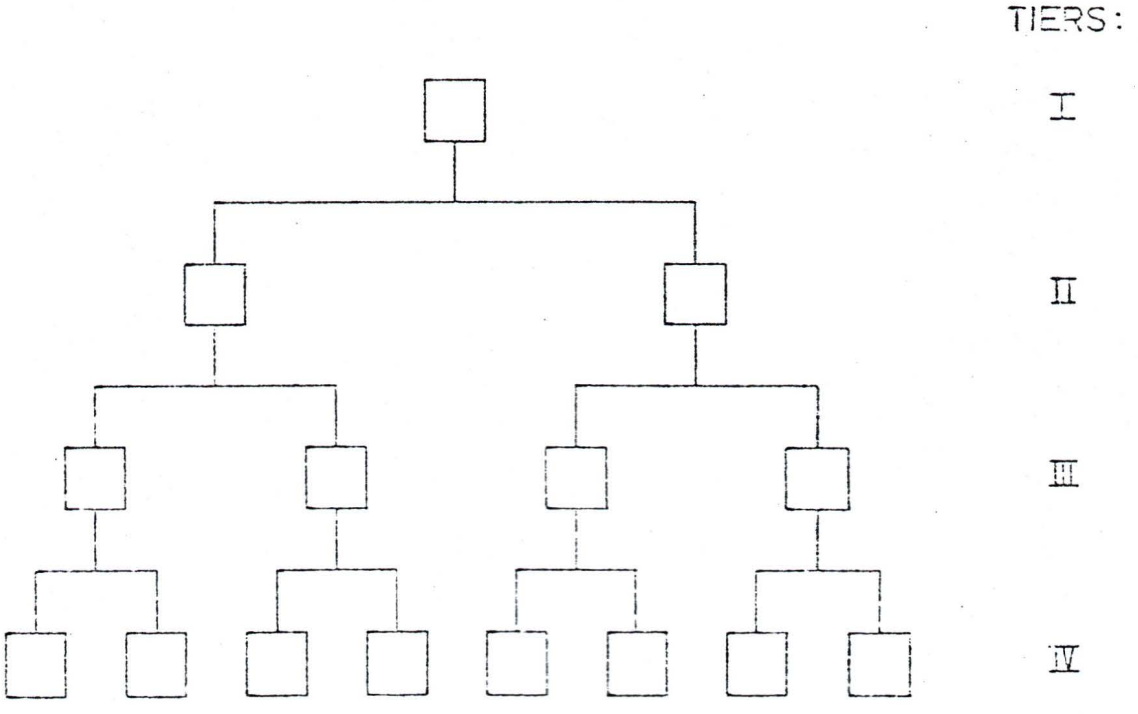
According to Mouzelis,[4] there are a minimum of three elements in any simple decision system: (1) a "detector or sensor: which receives information concerning the state of the variable being controlled; (2) a "governor or selector" which makes decisions based on application of the goals of the system to the information received from the sensor, and

(3) an "effector" which executes the governor's decisions or orders. A fourth component which can be added for most decision systems is: (4) an information processor which stores, classifies and processes the information, and presents it to the governor in a form which facilitates decision-making, and preserves information for future use. These elements can be thought of as roles played by members of an organization, and any member in an administrative organization is likely to play all of these roles.[5] For some decisions an individual performs all four roles himself; for others he may perform only one or two. The amount of discretion in any of the roles may be severely limited or quite extensive. (For example, the "effector" may have considerable discretion as to how he executes an order or he may be constrained to a specific process.) The very word "discretion" indicates that a decision is to be made, so that within any role there can be other decision systems with parallel components. As one descends through the resolution levels of the system (elements within elements of a system) the scope of the decision narrows, but the objective is always to complete a task which is an element of a higher level. At any given level, the goals are set by a higher level, and the objectives for each component are determined by the governor (or decision-maker) at that level.

D. Organization Theory

An organization is a complex network of decision-makers and their complementary functions, whose actions are co-ordinated toward organizational goals.[6] The organizations studied in this thesis, and probably all complex organizations, are structured hierarchically, as shown in Figure 8. The diagram shows a four tiered hierarchy, with a consistent span of control (number of subordinates for each supervisor) of two. The goals of the organization and overall co-ordination are provided by the single individual who occupies tier I,[7] although even this "top level" of the model is likely to receive his goals from, and report to, a still higher authority level. Since this is an analysis of the

FIGURE 8. Hierarchy diagram.



administrative branches of the public service, generally the top level in the organizations under study would be a deputy minister or someone who reports to a deputy minister. This general model can be applied to any organization, with adjustments made for the specific nature of the organization under study.

In most organizations the span of control is likely to be greater than two, with four through seven subordinates being the most common spans of control in middle and upper level management tiers.[8] The number of tiers in an organization can also vary, but as a general rule managers prefer to have as few levels as possible. The four-tier, two-person span of control model in Figure 8 accommodates fifteen individuals. A four-tier organization with a six person span of control would accommodate 559 individuals.

The reason for organization is the application of group effort to the achievement of shared goals. In an administrative organization this is accomplished by specialization and co-ordination of decision-making. In the organizational pyramid, or hierarchy of authority, decision-making is specialized in two dimensions--vertically and horizontally. Both types of specialization allow more work to be accomplished than is possible by a single individual, and permit greater skill and expertise to be developed and exercised by individuals.

E. Vertical Specialization

The translation of the goals of the organization into actions which (hopefully) attain the goals is done by steps. Goals are broken down into more specific objectives, and general strategies are developed which will attain these objectives. The strategies are in turn translated into "tactics" (perhaps called policy guidelines) which guide individual operating decisions. This could be diagrammed similarly to Figure 8 as a hierarchy with tier I being a goal; tier II, objectives; tier III would be strategies; tier IV, tactics, and a fifth tier added to represent operational decisions and actions. This process of translating goals into actions can be called the decision hierarchy because at each level different kinds of decisions are called for. Generally speaking, the higher level decisions are more important than the lower level ones because they have more impact on the way that the organization operates. The decision hierarchy does not coincide with the organizational hierarchy, but there are parallels, as were described in section II-E.

Authority to make decisions on behalf of the organization flows from the top to the bottom. In the provincial public service authority comes from the Legislative Assembly, through the cabinet and the departments' ministers, to the deputy ministers.[9] Within the administrative organization the top level individual (the executive) delegates most of

his authority to the next level (senior management), who in turn delegate most of their authority to the next level (middle management). The process of delegation does not absolve any individual of the responsibility for the decisions which have been delegated, thus at each level the right to override the decisions of subordinates is maintained.

For any potential decision situation, an administrator may choose to retain the decision-making authority by instructing his subordinates to "pass" such decisions "up" to him; he may choose to allow subordinates discretion on such matters by delegating decision-making authority; or he may establish a rule, regulation, or "policy guidelines" to either determine subordinates' actions or to limit their choice of alternative actions. Patterns of delegation tend to become fixed over time even though a new individual may assume an office.[10]

The administrative organization is therefore structured such that decision-making is conducted at each level in the organization, but the breadth of discretion narrows as authority filters down through the hierarchy. In the lowest, or operational, levels discretion may be quite limited, with organization members more likely to be processing information (acting as programmed decision-makers) than exercising discretionary judgement.

Administrators will generally choose to convert as many potential decision situations as possible into "programmed decisions" which can be acted upon by lower level personnel, and the authority to initiate the proper responses is then delegated.[11] The authority to make decisions for which such programming is not possible is either retained by the decision-maker or delegated to subordinates. The decision to either delegate or retain such authority is often based on the perceived importance of the decision, or the risks involved should an incorrect choice be made. Decision importance can be given magnitude in at least three dimensions: scope (types of activity controlled), scale (quantity of organizational resources controlled), and strength (completeness of control). While it is difficult to quantify the amount of authority that any individual may exercise, generally it can be assumed that those non-programmed decision situations for which authority is retained by an administrator are of greater perceived importance than those for which decision-making authority is delegated.[12]

Thus, in an administrative organization there is vertical specialization of decision-making within the hierarchy of personnel. The predominant decisions associated with various levels vary not only in degrees of discretion and perceived importance, but also in kind. According to Paterson (who developed the "decision band" system for measuring authority which was used in the previous two chapters):

> Take a one-man firm. (Theory should apply to a one-man firm as well as to a large corporation if it is a valid theory.) He sets out to make a living by manufacturing and selling, say, whistles. He has made a *policy* decision. To carry this out he *plans*, he works out how much money he needs and if and where he can get it, what machines he needs and how much to spend on them, how much for selling expenses, etc. He then gets brochures about machines and timber and goes and sees them. Within the limits of his planned budget he decides on the machines and timber, and on similar matters. He has made a unique decision in *interpreting* the plan of action--but he still hasn't begun to make whistles. The machine is mounted in the shed at the bottom of his garden and he works out how it is to be set up in order to drill holes in the wood; he decides the *process*, and having done so, puts in the drills and timber and operates the machine by a series of *operations* that constitute the process. Carrying out these operations he makes decisions on how fast he works, how his hand motions are controlled, he decides on the *elements* of these operations.[13]

The words put in italics by Paterson represent six hierarchic levels of decision-making. He argues that in larger institutions this pattern of vertical specialization is inevitable, allowing comparison of decision authority between individuals with widely differing tasks and kinds of decision responsibility. It is this six tiered hierarchy of decision levels which was used to classify individuals in the British Columbia Public Service as to the authority which they can exercise.

F. Horizontal Specialization

Within a given level of the hierarchy the work of the organization is broken down into a number of parts (the number of parts coinciding with the span of control). Gulick[14] lists four bases for such horizontal specialization; shared (1) purpose, (2) process, (3) clientele, and (4) place.

Hodgetts[15] adds one more: (5) the use of common facilities or materiel. Both authors agree that such classifications may be of little value in studying existing organizations. "Theoretically, this type of analysis appears to be logical and useful; but the effort to apply it to an existing public organization reveals ambiguities in the concepts that make their application to real situations difficult and sometimes unproductive."[16] Each of the above bases of horizontal specialization has advantages, and if one single base is used the advantages of the other four are lost. Most organizations develop a blending of types of specialization that is adopted specifically for their unique needs. Over time any pattern of horizontal specialization can become outmoded and inappropriate as the roles and tasks of the organization change. Periodic reorganization is necessary for effective performance.

One of the conceptual bases for specialization is "place," meaning territory of jurisdiction.[17] This does not mean that any organization with field offices must be structured along geographic bases of specialization. Field operations can be administratively organized along many lines. These will be discussed in chapter V.

G. Organizational Effectiveness and Efficiency

For any given decision situation there is, in theory at least, a single, best location in the hierarchy (i.e., an

individual) in a position to make the decision. The extent that an administrative organization is structured to make decisions in their optimal locations will, to a large part, determine the efficiency of the organization. Efficiency is defined in this context as the making of correct decisions at the locations in the hierarchy which incur the lowest total cost to the organization. There are two elements in this definition; that the correct decision must be made, and that this must be done at the lowest total cost.

A correct decision, or more accurately the choice of a correct response to a decision situation, is one which maximizes the attainment of organizational goals. In the public service, goals are often poorly defined, or there is a multiplicity of goals of undefined priority.[20] Two common and overriding goals of public organizations are the maintenance of the appearance of effectiveness and "fairness" through consistency in application of policies. In the higher policy-making and planning levels organizations tend to be "satisficers," choosing only from among alternatives which promise returns of high visibility with little risk, while at lower organizational levels the goal of "fairness through consistency" necessitates that the organization be insured against variation from departmental or branch policy guidelines, through the programming of routine decisions. In either instance the "correct" choice of action is one which is based on the value system of the government (as

interpreted by the minister), whatever technical information is necessary for the decision, and an appreciation for the impact that such a choice will have beyond the immediate decision situation. In order for an organization, or a specific decision, to be efficient it must first be effective. In other words, the "correct" decision must be made.

The second element of efficiency in an administrative organization is that decision-making must take place at the lowest possible total cost. Isard and Tung[21] identify four categories of costs associated with decision-making:

(1) cost of collecting information;

(2) cost of processing information;

(3) cost of transmitting information, and;

(4) time-cost of officials spent in reaching a decision based on the processed information made available.

The most efficient location in an organizational hierarchy for making a specific decision will be the one where all of the pertinent information can be brought together and processed at least cost, and made available to a decision-maker who has sufficient quality of judgement to make the "correct decision." While the costs of decision-makers' time may be quite high (especially where such time is scarce, as in the executive levels), the most important aspects affecting the distribution of authority are the necessity for "correct decisions" and the costs and risks of communication.

H. Communication and Decentralization Potential

All information to be used in any decision situation exists in, or is available to, various locations in the organization hierarchy. Often there are a number of sources for the same or similar information. This information is of varying fragility. "Fragility" here refers to the risk of damage to the information through misinterpretation, error or loss. All communication involves coding by the sender, transmittal, and decoding by the receiver. For example, a person may put an idea into words (coding), speak them, and they are heard by a listener (decoding). Error or miscommunication can occur at each of these three steps. The speaker may use words with different denotations or connotations to the listener than himself, background noise may render some of the words unintelligible, or the listener may infer meanings which the speaker did not intend. Thus, even in a simple face-to-face discussion misunderstandings can develop. Some types of information are more likely to be distorted or communicated inaccurately than others. Data tend to be rather sturdy and can be transmitted through a number of codings, transmittals, and decodings with little or no error. More intangible information, such as complicated concepts, value judgements, or assessments of credibility are far more fragile and liable to misunderstanding. Damage to information can result in wrong decisions.

Information of varying fragility becomes available at various nodes in the organization hierarchy, and this information must be transmitted to the appropriate decision-makers through communication channels of varying frictions and costs. Decisions should be allocated to decision-makers (authority should be decentralized) so as to minimize the fragility-distance of the information flows in the system,[22] and the costs of information processing and transfer. It is assumed that the decision-maker knows what information is needed, knows what information is available, and has access to all needed data and information processing resources. Where this situation does not exist it can be said that the administrator lacks sufficient "overview advantage"[23] for the decision. The most efficient level for any decision will be the lowest level which provides adequate overview advantage for effective performance.

Generally speaking, information which is initiated from the lower organizational levels is considered less fragile than that about government values and information concerning the organizational environment, which is initiated at the higher levels in a public organization. The decentralization potential of an organization is to a large extent determined by the degree to which it can make its goals, objectives and value bases explicit (thereby limiting the fragility of this information), and communicate these to middle and lower management levels. Expansion of decentralization potential

allows greater efficiency in administrative organizations.

Different channels of communication have different potentials for damaging information. The selection of a channel (for example, choosing to communicate face-to-face, by telephone, or by letter) will be based on the fragility of the information to be conveyed, but will also be largely determined by the spatial relationship between the sender and receiver. Since information flowing down through the hierarchy is generally seen as more fragile than that flowing up, the potential for decentralization of authority will be influenced by the spatial dispersion of the organization's personnel. The influence of dispersion on decentralization potential is discussed in the next chapter.

I. Footnotes

[1]This definition is a synthesis of many from Organizational Theory. For discussion of the variety of definitions in the literature, see Nicos P. Mouzellis, *Organization and Bureaucracy: An Analysis of Modern Theories* (Chicago: Aldine, 1967), chapter VI.

[2]For an example of how unauthorized decision-making may be necessary for organizational effectiveness, see Hugh Keenleyside, "Administrative Problems of the United Nations Technical Assistance Administration," *Public Administration*, June 1955, pp. 241-267.

[3]For example, Simon, *Administrative Behavior;* and Thompson, *Modern Organizations*.

[4]Mouzelis, *Organization and Bureaucracy*.

[5]For more discussion of the roles of the manager, including the non-decisional roles, see Henry Mintzberg, *The Nature of Managerial Work* (New York: Harper & Row, 1973), chapter 4.

[6]This is one definition of organization, but not the only one. Mouselis distinguishes between those organizational models which represent the organization as a decision-making unit (putting the emphasis on the interpersonal relationships between the individuals in the system) and those which focus attention on its structure as a decision system. For more discussion of definitions of organization, see Mouzelis, *Organization and Bureaucracy*, especially pp. 130-133.

[7]Although it is not common practice, the single role represented as tier I can be performed by a committee rather than a single individual.

[8]See Simon, *Administrative Behavior*, pp. 26-29; and Bowland, "Geographical Decentralization," pp. 348-349.

[9]There are variations on this pattern, particularly those involving commissions and boards which receive their authority directly from the Legislative Assembly.

[10]It is the fixation of these patterns that is the key to "bureaucracy," and allows replacement of individual members of organizations without extensive reorganization with each turnover.

[11]The reasons for this preference are discussed in Simon, *Administrative Behavior*, chapter I.

[12]If the administrator does not have the technical expertise necessary to make a decision of perceived high importance, he may retain the decision authority but delegate the decision analysis (the "information processor" role) to a subordinate, who will recommend which action be taken.

[13]Paterson, *Job Evaluation*, pp. 23-24.

[14]Luther H. Gulick, "Notes on the Theory of Organization," in *Papers on the Science of Administration*, eds. L. H. Gulick and L. F. Urwick (New York: Columbia University Press, 1937).

[15]Hodgetts, *Canadian Public Service*, chapter 6.

[16]Ibid., p. 112.

[17]In Gulick's categorization territory of jurisdiction and location of operations both appear to be included in "place." Hodgetts' addition of "use of common facilities" separates these two very different concepts.

[18]It is important at this point to state that the number of variables and intangible factors involved in identifying the "best" location for decision-making precludes the possibility of use of the following analysis in practice. This discussion of location of decision-making is presented as a conceptual model only.

[19]The individual can attempt to influence or change organizational value systems (or policies) but he is expected to comply with whatever standards are established at higher levels in the organization when making decisions.

[20]Most departments or branches would be able to produce a list of goals, often from the enabling legislation, but in most cases these would be too vague to be useful in determining policy. For a discussion of the lack of explicit goals in public organizations, see Economic Council of Canada, *Eighth Annual Report: Design for Decision-Making* (Ottawa: Information Canada, 1971), especially chapter 5, "A Framework for Government Decision-Making," and Jean-Marc Lemire, "Program Design Guidelines," *Canadian Public Administration* 20 (Winter 1977):666-678.

[21]Walter Isard and Tze Hsiung Tung, "Some Concepts for the Analysis of Spatial Organization," 2 parts, *Papers and Proceedings of the Regional Science Association* 11 & 12

(1963), part 1 in vol. 11:17-40; part 2 in vol. 12:1-28.

[22]"Distance" is used here not only in a spatial sense, but also refers to the propensity and occasions for error in coding, transmittal and decoding inherent in the communication channel used.

[23]This phrase was introduced in Thomas Marshak, "Centralization and Decentralization in Economic Organizations," *Econometrics* 27 (July 1959):399-430, and is used by Isard and Tung in "Analysis of Spatial Organization."

CHAPTER V

LOCATION OF ADMINISTRATIVE OPERATIONS

A. *Introduction*

The previous chapter developed the idea that organizational effectiveness and efficiency are dependent on specialization through delegation of authority to the appropriate individuals in the organizational hierarchy. The most efficient pattern of delegation would be that which allows effective decisions to be made at the least total cost to the organization. Two important principles emerged: that decisions should be made at levels which provide adequate overview advantage for effective performance and that authority should be decentralized so as to minimize the costs of processing and communicating needed information. Thus, the organization can be seen not only as a co-ordinated hierarchy of specialized decision-makers, but also as a complex network of information flows.

The discussion in the previous chapter avoided consideration of the effects that spatial relationships might have on organization communication flows. This chapter adds a spatial dimension to the conceptual framework which has been developed. It also discusses various patterns of administrative organization for dispersed operations, the externalities of the location of government administrative activities,

and reviews the bases upon which other governments have consciously relocated administrative operations.

B. Distance and Communication Media

Communication always involves the movement of information. The distances involved as well as the communication media chosen will determine the potential for damage to information. Damage cannot be treated only as a function of distance because the most likely sources of error or loss are in the coding and decoding of the information messages. Yet damage is also not simply a function of the communication medium employed, because distance (both hierarchical and spatial) affects the recipient's ability to verify, assess and evaluate information components, especially subjective information elements. Further, when redundancy and supplementary information are incorporated in messages to alleviate the above problems, additional congestion costs are incurred (information overload as an example). The choice of information channels, as well as the optimum distribution of decision-making authority is the result of trade-offs involving the achievement of an optimum balance between minimum information damage and minimum costs.

The major effect of physical distance of information flows is on the choice of communication channels. The Great Britain Directorate for Building Development[1] identifies three media for communications in organizations:

(1) *Face-to-face:* This involves instantaneous transmittal and reception, permits immediate feedback, and facilitates detection and correction of mis-communication. Face-to-face communication also includes group meetings and discussions. The costs are very low if both (or all) parties' workstations are near each other, however costs increase rapidly with increased distance. Distance also reduces the potential for spontaneous use of this mode.

(2) *Telephone:* This allows instantaneous transmittal and reception, immediate feedback (although only through audio cues), and elaboration and correction based on such feedback. Group discussions (when technically possible) must be highly organized, but generally this medium is particularly amenable to spontaneous use. Distances have no effect on quality of communication, but costs may increase with distance.

(3) *Written:* The movement of papers as well as their initial composition and transcription is slow, and comparatively little opportunity is presented for feedback and detection and correction of mis-communication. Distance has little effect on cost or accuracy, but great effect on time lag. This is the least spontaneous channel, but also the one in which senders devote most care to accuracy in coding (composition).

The fragility and nature of the information will determine which medium is best for its communication.

Written media have advantages for data and "hard facts" because once committed to paper and verified (proof-read) such information can be transmitted through or to several individuals with little risk of damage, and it provides a convenient vehicle for storage of the information for future use. Managers often request written confirmation of information which has already been communicated by face-to-face or telephone conversations. The disadvantages of written communication lie in its slowness and in the reluctance of administrators to commit to paper certain types of information (anything which could later cause embarrassment to the sender) which may be helpful to the receiver/decision-maker. Except as a record for future use, for broadcasting information to several parties, or for the transmitting of large quantities of data, written messages are the least preferred medium of communication for information flowing down or across organization hierarchies, and the most preferred for information flowing up.[2]

The decision-maker's preference for "hot" information leads to a preference for face-to-face and verbal (telephone) communication media.[3] Such modes allow immediate feedback, verification and clarification to minimize the possibility of error, and permit instantaneous transmittal and reception of information. Face-to-face contacts have further benefits in the availability of visual cues which help to eliminate error as well as provide additional information for credi-

bility judgements. Such communication is the best medium for allowing evaluation and interpretation of information which is based on subjective judgement by the communicator. The major disadvantage of face-to-face communication is that frequent contact is not practicable where the parties are spatially separated. Several intra-organizational studies have demonstrated that the frequency of contact between organizational members rapidly declines with increased spatial separation.[4]

Communication by telephone has many of the advantages of face-to-face contact, but it does not allow the use of visual cues as feedback to the sender, nor does it provide such cues to the receiver for evaluation of credibility. Closed circuit television and videophones are technically feasible, but managers on whom they have been test-marketed did not feel that their benefits justified the presently high costs, and did not see them as acceptable substitutes for face-to-face contact.[5]

The best location for any decision-maker would be one which allowed the maximum use of face-to-face contact for communicating information of high fragility, and access to written and verbal (telephone) channels where the use of these is appropriate. The ubiquitous availability of WATS (Wide Area Telephone Service) lines and postal delivery renders this second condition rather meaningless.

C. Development of Background Information

Thus far this discussion has centred on information which the decision-maker seeks out to specifically apply to a task. Another type of information which is very important, and which will heavily influence the optimal spatial locations of decision-makers, is the "background" information which he or she needs. Specific locations vary in their ability to enable decision-makers to accumulate suitable background knowledge.

One aspect of this background information concerns the decision-maker's ability to appreciate subtle changes in the government's, or his minister's, values and priorities. As stated earlier (in section IV-G), governments tend to avoid stating their real goals and objectives explicitly, yet it is these intangible factors which often form the value basis for decisions. Many managers feel that this can only be gained through frequent face-to-face communication with those who set the goals and objectives.[6] As stated at the end of section IV-C, the goals of any resolution level in the decision hierarchy are set by the "governor" of the next higher level. In practice, this means that decision-makers can improve their background understanding of department or branch values and priorities through frequent contact with their immediate superiors and other higher level managers. Such frequent contact is most likely to occur if the decision-maker is situated near the higher level administrators.

Another way that distance affects the development of background is in diffusion of knowledge of information availability. In the organizational literature, communication across hierarchy lines is called the informal organization. The formation of an effective informal organization is necessary to effective administration, and the development of informal communication channels is greatly influenced by spatial factors. Decision-makers must know what information is available as well as have ready access to it. Physical proximity allows informal contacts across hierarchy lines; this facilitates the development of knowledge of information sources as well as efficient exchange of information.

Many decision-makers must also maintain their technical and professional competence. Knowledge in any discipline can quickly become obsolete if the practitioner does not maintain professional contacts with his colleagues. Since location in urban areas is likely to provide more opportunities for such contacts, such locations would appear to be preferable. Even where specific professional or technical knowledge is not required for decision-making, many studies have shown that the "information-rich" urban settings provide better opportunities for the development of background for general decision-making, for example through access to university management development programs or professional management associations as well as through informal contact with other administrators, than remote or isolated locations.[7]

If an administrator is making decisions which affect a specific locality much of the needed background information may only be available in that locality. Decisions made from distant locations can suffer from inadequate background concerning local conditions.

Where a decision-maker is located will affect the background which he or she accumulates, and will ultimately affect the decisions that are made. The choice of a "best" location for developing suitable background will depend on the nature of the decisions that are to be made, and on the information system which the organization develops for transmitting general as well as specific information.

D. Location of Non-Decisional Tasks

If an organization could collect and process all its information (including necessary background) at one location, this would be the most efficient spatial pattern for its decision-making. A single location would allow maximum choice of intra-organizational communication channels, and thereby permit an optimum decentralization pattern to develop. This is not to say that such would automatically develop, but that the *potential* for optimal decentralization would exist. However, the optimal location pattern of an administrative organization is not only determined by the decision-makers' needs, but also by the locational criteria for other administrative tasks. Many administrative organ-

izations provide direct services to the public, collect information from extra-organizational sources, or in other ways conduct transactions which involve contact with people outside the organization. There are locational criteria for these operational roles which, in many cases, dictate that some of the functions of the organization be dispersed. Using the four-process model presented in section IV-C, these are most likely to be the "detector or sensor" and "effector" operatives in the administrative organization.

Generally, personnel at or near the bottom of the organizational hierarchy perform the twin roles. They receive information about the state of the variables that the organization is controlling, and they are the agents whose actions are seen as the delivery of organizational programs. The locational criteria for such monitoring and service functions have been extensively studied by geographers and operations researchers, and several methods of allocation-location analysis have been developed.[8] In general, these locational criteria involve distribution of operations in such a way as to facilitate user access to the services provided, and to facilitate organizational access to information which must be gathered from dispersed locations. For example, dispersal of social workers in the Department of Human Resources not only allows client access but also permits more effective monitoring of clients' needs (because workers have immediate knowledge of local circum-

stances) and evaluation of program effectiveness. Similarly, the Department of Forests' Range Management Program could not do its job unless some of its personnel were in the field gathering information about local conditions as well as enforcing the branch's regulations. In both of these cases agents for the organization must be located where the information is available, and physical presence is necessary for program delivery.

Optimal dispersion of operational personnel in many organizations is determined by the spatial distribution of the clients to be served, resource to be managed, or industry (or other factor) to be controlled. Location of operations personnel can also be influenced by the necessity for liaison or co-ordination with other (spatially placed) agencies, or the need to have access to locationally fixed resources.

E. Field Organization

When operation in the administrative organization must be dispersed, the organization must be structured to provide co-ordination of these field operations. Hodgetts has developed four general models of organizational structure for field operation of departments of the Federal Public Service.[9] By far the most common pattern, both in the federal and provincial public services, is called the integrated-unitary model, in which a hierarchy of jurisdictional areas parallels the organizational hierarchy. Thus, the basis of

vertical specialization is progressively smaller areas of jurisdiction.

The location of central, regional, district and sub-district offices may be studied by applying central place theory.[10] Routine operations, or decision situations of high frequency can be dispersed to all communities which have a minimum threshold demand for such services. The threshold level will depend on the necessity for physical access by clients to the service (or of administrators to the territory administered), optimum size of operation offices, and the conditions of demand and supply. Services or decision situations of lesser frequency and/or drawing more heavily on specialized resources can be allocated to the offices which serve large regional or even province-wide territories.

Application of central place theory and its derivatives can theoretically provide a quantitative basis for making decisions as to where field offices should be located, and what responsibilities should be assigned to each level in the geographical and organizational hierarchy. The most ambitious of such theoretical endeavors is presented by Isard, who in *General Theory* treats communication as a form of transportation (with costs and frictions) and adds the effect of agglomeration economies to the model. He states: "the optimal structure of one organization is intricately linked to that of others. Hence, spatial as well as non-spatial interdependencies of organzations must, at least to

some extent, be explicitly introduced into the framework."[11] While Isard's model employs more of the essential variables than a comparatively simple Löschian analysis, even he is forced to admit that it is not possible to use his conceptual model in practice.

> A careful perusal of the model reveals that such interdependence covers primarily technical interdependence via economic input-output relationships. But in reality the interdependence among decision-making authorities and decisions is more extensive and intricate--involving other forms of direct and indirect relationships . . . to implement such a conception in an empirical manner for a hierarchical set of nodes is far beyond our present capabilities. Hence we do not attempt to formulate this conception any further in this book.[12]

One major reason that such quantitative methods cannot be developed for analysis and allocation of administrative responsibilities is that so many of the necessary elements for such a model are non-quantifiable at this time. Fragility of information, frictions in communications flows, power (as distinct from authority) are all real phenomena, but adequate metrics for these concepts do not exist. One major factor which seems to render such efforts futile is that the distribution of authority in government is at least as much a political matter as it is a technical-administrative one. According to James Fesler:

> Distribution of governmental authority is one of the oldest and most abiding problems of society. By our solutions of this distributive problem we determine whether the government will be stable or unstable; whether it will be dictatorship, a government by and for the few, or a government by and for the many; whether the government will be quickly responsive or unduly laggard in meeting the needs of society; whether policies will be made by popular representatives, by experts, or by an effective combination of the two; whether we shall have the rule of law, the rule of men, or the rule of men under law.[13]

While the availability of technical analysis can help to enable better decisions, the authority distribution patterns (both organizational and spatial) which the government adopts are ultimately the result of political realities as much as technical considerations.

F. Externalities of Location

The distribution of government administrative personnel and authority has many extra-organizational impacts. The most obvious is the job creation and direct payroll effect on communities. The provincial public services are the fastest growing level of government in Canada, and the proportion of government jobs which are administrative in nature has grown rapidly in recent years.[14] Provincial government administrative employment provides high wage rates with little seasonal variation. In addition to direct job creation in a community, as payrolls are circulated in the local economy, additional jobs are created through income multiplier effects.

There are other community benefits of government administrative employment. Decision-makers who have control over organizational purchase of goods and services exhibit a "spatial bias" in selecting venders, preferring to deal with local rather than distant suppliers.[15] The extent of this element of community impact is dependent on the amount of authority in local offices rather than on number of personnel.

Westaway demonstrates how distribution of authority can also have impacts on the quality of community housing, education, and health.[16]

Where authority is concentrated in a community sufficiently to generate agglomeration effects (especially increased contact potential), there is a possibility for government employment to act as a propulsive industry, attracting complementary employment in the private sector.[17] The indirect income effects of decentralization of authority may even outweigh the direct economic effects of dispersion of personnel if sufficient "critical mass" of such authority is concentrated in selected communities rather than scattered to diverse locations.

These extra-organizational impacts present government with a dilemma, because the optimal distribution of personnel and authority for effectiveness and efficiency of government operations may not be, and in fact is not likely to be, the distribution which is best from a social perspective. On the other hand, distribution based on social goals may create serious administrative problems. This thesis does not discuss in detail the potential for such social impact in British Columbia,[18] but it does recognize that the distribution of government activities is, or should be, in part based on these factors.

G. Spatial Distribution in Other Countries

Explicit government policies of administrative dispersal and/or spatial decentralization have been developed in a number of countries. While it is recognized that differences in geographic circumstances, and even more importantly in political and administrative organization of government, make application of these studies to British Columbia inappropriate, it may be useful to differentiate various philosophical approaches. In the English language literature, the most carefully documented analyses have been of government activities in Great Britain and Sweden. The governments of these countries have undertaken major studies of the impact of their spatial distribution, both on the organizations themselves and on their national economies. The purpose of these studies is to determine the extent to which dispersion of government activities can be used as a tool for regional development programs.

In Great Britain the dispersal of government administration has been the subject of two Royal Commission reports, and numerous other governmental and academic studies.[19] The most important of these studies was the "Hardman Report," a Royal Commission study presented in June 1973.

> [It] examined some 86,000 posts in Government departments and in offices which, while not part of the central machinery of Government, are closely associated with it, e.g. the Research Councils. Such work cannot be done outside London without some loss of effectiveness in the services provided for Ministers, Parliament and the public, whether individuals or organizations. Sir Henry Hardman [considered] how much could be

> moved at what price in lost efficiency and concluded that, if the Government were prepared to bear some loss, some 30,000 posts could be dispersed, over a period of years, from 20 Departments and their bodies.[20]

The theme of the report was the dispersal of work from London, where there was some evidence that the size of the city was creating negative externalities,[21] and that the movement of jobs to economically depressed areas might be justified. As in other British studies, the emphasis in the Hardman Report was on identifying the "easy to move" branches, and discussion of the impact on receiver communities tends to be limited to direct economic effects.

The Swedish studies tend to put far more emphasis on relocation to selected nodes, to create agglomeration economies and to develop "intermetropolitan circulation of specialized information [and to] influence the process of city-system development."[22] While few of the governmental studies are available in English, the academic work of Thorngren, Törnqvist and Pred provide an indication of the highly sophisticated approach which the Swedish Government is taking in studying the spatial patterns of its administrative operation. Unlike the British approach, which is more concerned with dispersal, the Swedes focus on spatial decentralization of government decision-making, and how it affects location decisions in the private sector.

Some other industrialized countries apparently use the location of government activities as elements of national

development policies, most notably the Netherlands and France, but little information is available about the philosophy and mechanics of such programs in the English language literature.

In underdeveloped countries the problem of regional employment disparities is even greater, and concentration and spatial centralization of government often contributes to the problem. According to James Heaphey:

> Decentralization within government organizations is still another strategy to deal rationally with the spatial dimension. Over-centralization of authority and responsibility in ministry headquarters in capital cities is generally regarded as a formidable obstacle to development. It is a characteristic of administrative systems in developing countries that decisions are not made in the field, that all guidelines for action and all action itself emanates from central headquarters, and that administrators in the field accept very little responsibility for what they do. As sincerely as some governments try to decentralize their bureaucracies, they seldom succeed to the degree that they regard as minimal if administrative institutions are to facilitate rather than hinder development.[23]

Heaphey attributes the problem in developing countries to the absence of values integration and professionalism among administrators, the lack of which makes dispersal and spatial decentralization difficult if not impossible. Spatial centralization of authority in such countries leads to industrial concentration. In John Friedmann's review of economic development in a number of developing countries he found that "In these countries, the choice of a location tends to be strongly influenced by a desire of management to gain direct access to the relevant centers of governmental power."[24]

While governments in many such countries have been able to recognize the problems associated with concentration of government functions in their capital cities, they have been unable to proceed beyond token attempts at dispersal and spatial decentralization.

H. Spatial Distribution of the Canadian Federal Government

In Canada (as in the United States) there appears to be little overall planning of governmental dispersion and spatial decentralization. In the Federal Government each department has developed its own spatial pattern of operation with little or no co-ordination between departments.[25] Until recently the only efforts to co-ordinate the geographic aspects of departments' operation involved attempts at rationalization of the boundary structures to facilitate co-ordination of operations.

Canada does not have the problem of the majority of developing countries of almost total concentration and centralization in the capital city. The federal system inherently spatially decentralizes many of the functions of government. The Canadian Federal Government has been dispersed since its inception, and presently about 73% of its employees are located outside the National Capital Region;[26] however, according to the former President of the Treasury Board, Jean Chrétien, "only one out of every seven executives

is located outside the National Capital Region; and only about one-half of the top three levels of program managers below senior executives are to be found in other regions."[27]

In 1975 the Federal Government adopted a formal policy of co-ordination of location of government operations with its regional economic development policies. The instrument of this co-ordination is the Federal Government Relocation Program.

> The primary purpose of the relocation program is to contribute to economic growth. Regional economic growth is one of the major objectives of the federal government. It is therefore logical that the relocation of federal function, jobs and salaries be used as an instrument for the promotion of economic activity in less advantaged regions of Canada. . . . The second objective is to contribute to a more balanced pattern of urban growth across the country. By adding government functions and jobs to smaller communities, the relative growth and attractiveness of such areas can be enhanced. Indeed, the move of a government function could in many cases be the one needed element to give that community a more stable base. The third objective is to enhance national unity by increasing the federal presence in areas which have often felt neglected by and remote from Ottawa.[28]

According to Mr. Chrétien, in a personal correspondence with this writer (see Appendix D):

> The federal government has opted to keep decentralization within manageable dimensions by limiting the program to the relocation of easily separable units. Generally these are self-sufficient groups having clearly defined service or operational functions and are not directly involved in the process of governing the country.
>
> Equally, site selection has been based upon the already established developmental priorities of DREE and MSUA with individual choices taking into account the ability of each site to meet the operational needs of the units to be relocated. Where there were a number of operationally satisfactory options the current economic conditions in each area were considered in arriving at final decisions. . . .
>
> While these approaches have avoided the need for the types of studies which you have postulated, they have also

> limited the relocation potential for the Federal Public Service and may require future broadening.[29]

As part of this relocation, over the next five years, 4,600 full-time and 5,500 part-time jobs are scheduled to be moved from the capital area to 24 communities in all ten provinces.[30] The lack of technical bases for selection of branches for dispersal and of receiver locations has resulted in apparent relegation of the program to being a political "pork barrel." Of the 15 relocations announced on October 3, 1977, 14 are from Ottawa to Liberal ridings, and 8 are to ridings of cabinet ministers.[31] Even if the Canadian relocation program was functioning without political bias, it clearly lacks the sophistication of approach of the Swedish, or even the British system, and presents a poorer model or conceptual framework than either of these other two systems.

The next chapter discusses the present policy, and possible policy alternatives, for the British Columbia government.

I. Footnotes

[1]Great Britain, Department of the Environment, Directorate for Building Development, *The Planned Office: A Primer for Management* (London: Her Majesty's Stationery Office, 1971), p. 9. Other modes of communication are available, such as Telex and computer telecommunications. They all have similar limitations to telephone and written media.

[2]See A. C. Spence, *Management and Communications* (London: Macmillan and Co., 1969).

[3]Mintzberg, *Nature of Managerial Work*, chapter 3.

[4]See John B. Goddard, *Office Linkages and Location*, Progress in Planning Series, vol. 1, part 2 (Oxford: Pergamon Press, 1973); Daniels, *Office Location;* Toyne, *Organization and Behaviour;* and Mintzberg, *Nature of Managerial Work*.

[5]For a good discussion of these limitations, see Spence, *Management Communications*, chapter 4.

[6]Mintzberg, *Nature of Managerial Work*, chapter 3.

[7]See Goddard, *Office Linkages and Location;* Gunnar Törnqvist, *Flows of Information and the Location of Economic Activities*, Lund Studies in Geography, Series B, No. 30 (Lund, Sweden: Royal University of Lund, Department of Geography, 1968); B. Thorngren, "How Do Contact Systems Affect Regional Development?" *Environment and Planning* 2 (1970):409-427; and Allan R. Pred, "Diffusion, Organizational Spatial Structure, and City System Development," *Economic Geography* 51 (July 1975):252-268.

[8]For example, Massam, *Location and Space;* Toyne, *Organization Location and Behaviour;* Richard L. Francis and John A. White, *Facility Layout and Location: An Analytical Approach*, Prentice-Hall International Series in Industrial and Systems Engineering (Englewood Cliffs: Prentice-Hall, 1974); Isard, *General Theory;* and British Columbia, Department of Public Works, Planning and Programming Branch, "Precinct '73," internal report, October 1973.

[9]Hodgetts, *Canadian Public Service*, chapter 10.

[10]See Toyne, *Organization Location and Behaviour*, chapter 8.

[11]Isard, *General Theory*, p. 97.

[12]Ibid., p. 835.

[13]Fesler, *Area and Administration*, p. 1.

[14]See Davies, "Structural Change and Implicit Regional Development Policies," chapter III.

[15]See Allan R. Pred, "The Growth and Development of Systems of Cities in Advanced Economies," in *Systems of Cities and Information Flows*, eds. Allan Pred and Gunnar Törnqvist, Lund Studies in Geography, Series B, No. 38 (Lund, Sweden: Royal University of Lund, Department of Geography, 1973), pp. 7-82; Westaway, "Spatial Hierarchy of Business Organizations"; and Friedmann, "Spatial Organization of Power."

[16]Westaway, "Spatial Hierarchy of Business Organizations."

[17]See Rhodes and Kan, *Office Dispersal and Regional Policy;* Thorngren, "Contact Systems"; Törnqvist, *Flows of Information;* Burrows, "Office Employment and the Regional Problem"; and Davies, "Structural Change and Implicit Regional Development Policies."

[18]Davies, "Structural Change and Implicit Regional Development Policies."

[19]For example, Great Britain, *Dispersal of Government Work* (The Hardman Report); Rhodes and Kan, *Office Dispersal and Regional Policy;* Burrows, "Office Employment and the Regional Problem"; Michael Chisholm and Gerald Manners, eds., *Spatial Policy Problems of the British Economy* (London: Cambridge University Press, 1971); Goddard, *Office Location;* and G. N. Yannopoulos, "Local Income Effects of Office Relocation," *Regional Studies* 7 (1973):33-46.

[20]Preface to Great Britain, *Dispersal of Government Work* (The Hardman Report), p. v.

[21]See John H. Dunning and E. Victor Morgan, eds., *An Economic Study of the City of London* (London: George Allen & Unwin, 1971).

[22]Pred, "Diffusion, Structure and Development," p. 252.

[23]Heaphey, *Spatial Dimensions of Development Administration*, p. 25.

[24]Friedmann, "Spatial Organization of Power," p. 9. Friedmann also has an observation concerning studies of spatial distribution of governmental power which has had some influence on the methodological approach of this thesis.

"We may have to choose between quantitative precision in research, leading to very restricted and possibly misleading insights, and a more comprehensive, qualitative approach which may have to sacrifice the elegance of mathematical formulations for a deeper historical and conceptual understanding" (ibid., p. 30).

[25]See Hodgetts, *Canadian Public Service;* and Bowland, "Geographical Decentralization of the Canadian Federal Public Service."

[26]Canada, Federal Government Task Force on Relocation, "Press Kit" (1977), in "Backgrounder."

[27]Jean Chrétien, "Priorities for the 1980s," remarks made at the annual conference of the Institute of Public Administration of Canada, September 3, 1975.

[28]Canada, Federal Government Task Force on Relocation, "Press Kit," news release, July 5, 1976.

[29]Jean Chrétien, personal correspondence, December 7, 1977.

[30]Canada, Federal Government Task Force on Relocation, "Press Kit," Statement by the Honourable Jean Chrétien, October 3, 1977.

[31]"Grit Ridings Given Relocation Plums," *Victoria Times,* October 4, 1977, p. 1.

CHAPTER VI

SUMMARY AND CONCLUSIONS

A. *Introduction*

The material in the previous chapters has "set the stage" for an evaluation of the dispersal and spatial decentralization policies of the British Columbia government. Chapter I defined the approach of this thesis as a policy analysis, and defined the policies under study as the dispersal (geographic distribution of personnel) and spatial decentralization (physical distribution of decision-making authority) of the administrative branches of the British Columbia Public Service.

Chapters II and III quantitatively described the spatial distribution pattern of thirty administrative branches. It was found that there is considerable variation in the degree of dispersion and both spatial and non-spatial decentralization of these branches. Some of this variation can be attributed to differences in administrative function (the word "administration" covers a wide variety of kinds of activity), but variation was also found within functional categories of branches. This appears to suggest that branches are not necessarily tied to specific spatial distribution patterns which are dictated by operational demands.

Chapters IV and V discussed theoretical aspects of the development of administrative geographic patterns, and reviewed the spatial distribution policies of Sweden, Great Britain and Canada. It was found that each of these countries' policies reflect different attitudes toward the role of government operations in influencing regional development. These countries' policies demonstrate that the distribution of government operations can be a tool of regional economic policy, although no attempt was made to assess the effectiveness of their programs.

This chapter incorporates the last two steps in the policy analysis process described in section I-D. These were: (5) evaluate the effectiveness and efficiency of the present policy with reference to present objectives; and (6) evaluate the appropriateness of the present objectives and policy.

B. Present Government Policy

The present policy of the Government of British Columbia with regard to its administrative dispersion and spatial decentralization seems to be that each department is allowed to spatially structure itself so as to maximize the potential for efficiency of intra-departmental operation. Since there is no concerted attempt at co-ordinating spatial distribution to achieve efficiency in inter-departmental communication and information flows, even if each department or branch

develops a totally efficient spatial pattern for its own administration, the result is likely to be sub-optimization for the government as a whole.

British Columbia's policy is not an explicit one, but rather is implicit in its behavior. Administrators who were interviewed during the data gathering for chapter III were asked if there was an overall government policy relating to spatial distribution, or if there were any pressures from extra-departmental sources affecting location of operations. The administrators consistently responded that they knew of no government policies, and the only pressures reported were occasional requests from members of the Legislative Assembly promoting expansion in their ridings. This lack of an explicit policy was also reported by Berwyn Davies in his recent M.A. thesis, "Structural Change and Implicit Regional Development Policies: The Role of Government Office Employment in British Columbia."

Although British Columbia does not relate its administrative distribution to its regional development policies, there are relationships between these distribution patterns and regional development (as discussed in sections V-F, V-G, and V-H). British Columbia's regional development objectives, as articulated in the General Development Agreement signed by the provincial and federal governments on March 28, 1977, call for "achieving a greater degree of regional balance in provincial economic development."[1] Davies concludes that

the provincial government is unaware of the regional development implications of the distribution of governmental (or even private sector) administrative activities, and that its development policies are totally related to primary and secondary industries.[2]

C. Department Distribution Policies

Within departments the spatial distribution of operations and authority is treated as one aspect of departmental organization, and spatial patterns are treated as "side-effects" of organizational allocation of authority. Organizational decisions are based on operational effectiveness and efficiency criteria only, with apparently no consideration given to the externalities or regional development implications of locational decisions.[3] If there is a tendency for less-than-optimal patterns to develop, it is probable that the inefficiency is the result of overconcentration and overcentralization rather than the reverse. This may occur because of:

(1) Inertia: Most new programs tend to be located in Victoria or Vancouver where specialized staff is likely to be available, and where senior administrators can more effectively monitor program performance. The decision to move an operation to a new location, or to expand to include field offices, must be consciously made, and may involve the relocation of existing staff. Thus,

"inertia" tends to promote continued concentration of administrative activities.

(2) Supervision: Senior management tends to prefer that authority be located, both hierarchically and spatially, where decision-makers can be readily supervised, and where poor decisions can be quickly detected and reversed. In effect, executives tend to put more trust in individuals whose day-to-day activities can be seen, and whose competence can be more easily evaluated. This tends to result in much of the organizational authority remaining in headquarter offices, and even in the executive suites.[4]

(3) Consistency: The provincial government places very high value on "fairness" through consistency in policies throughout the province. This leads to decisions being made by administrators who have a province-wide perspective, and thus to centralization of authority in headquarter offices.

(4) Goals definition: Lack of explicit goals and objectives contribute to a fairly high degree of centralization of authority at the executive levels. It is a common complaint of middle-level management that authority is overcentralized, and that their decision-making capabilities are underutilized.[5]

(5) Administrative support staff: If authority tends to remain at headquarters, the administrative support

operations (such as clerical and research personnel) tend also to be assigned there, where they are readily accessible.[6]

(6) Upward mobility: Many of the personnel officers interviewed in the data-gathering process stated that many public servants perceive that promotion prospects are better in headquarter offices. This tends to result in the concentration of more "talent" in central offices.

(7) Community: The Victoria urban area is considered to be attractive, and the climate is particularly mild. This results in preference by managers that they, and their programs, be located in that city.

These centripetal forces tend to concentrate personnel and authority in Victoria (and to a lesser extent in Vancouver), and tend to preclude the possibility of overdispersal. Thus, in branches where there is personnel and authority in the regional centres and other communities, it may be assumed there is sufficient justification for their distribution.

As demonstrated in chapter III, the dispersed and spatially decentralized branches tend to be in the "Resources Management and Development" and "Regulatory Agencies" functional categories. The nature of the responsibilities of these two categories seems to require extensive use of "detector or sensor" and "effector" personnel in field offices. One might have expected greater dispersal/spatial decentralization of the "Protection and Development of Human

Resources" branches. The lack of dispersion of three of these branches could not be explained by a review of their responsibilities. The concentration of "Departmental Administration and Planning" and "Services to the Public Organization Branches" is not surprising given the above centripetal forces as well as the other communication factors discussed in chapter V. However, the dispersion and spatial decentralization of the Department of Highways Executive and Support branch and the Public Service Commission Administration seems to indicate that there can be potential for improved efficiency through distribution of what are commonly considered to be central office functions. Also, those branches which are presently dispersed/spatial decentralized may profit from further dispersal and spatial decentralization.

Evaluation of efficiency in the distribution of each branch would necessitate detailed communication studies such as were conducted by the British and Swedish governments. While such detailed studies are beyond the scope of this thesis, it does appear probable that there may be potential for greater dispersion and spatial decentralization of government administrative activities, and that greater distribution may, in some cases, lead to improved branch efficiency.

D. Limiting Factors

There are some operational procedures and values in the provincial government which act as factors which limit the potential for dispersion and spatial decentralization of the Public Service. If these factors could be changed, broader distribution would be allowed since these act as the "bottle-necks" at the present time. This is not to say that such factors should necessarily be changed, but that identification of what trade-offs are possible should assist in the making of appropriate decisions regarding dispersion and spatial decentralization, and the development of more effective communication patterns.

The most influential factor is the lack of explicitness in government goals, objectives, values, and priorities. If these guiding principles of the organization could be made more explicit, decision-making could be more effectively moved away from the executive suites of government. It is recognized that there are political costs to identifying objectives and priorities, especially since this also entails an acknowledgement of which of the goals and objectives receive lesser priority, but perhaps the benefits of greater efficiency, regional economic development, and "bringing government closer to the people" could outweigh these costs.

Another factor which affects potential for decentralization is the government's apparent high priority on consistency throughout the province. If decision-making is

delegated to individuals responsible for different territories, one may expect that in apparently similar situations, local circumstances or differences in the "background" of the administrators would result in different choices being made, and in differing "policies" established for future decisions in the various jurisdictions. If "decision-makers" are not allowed the discretion that can result in such differing choices, then the authority has not really been decentralized to the field offices.

One operating practice which affects the availability of face-to-face communication is the assignment of priorities in the government's air transport system. The B.C. government operates a fleet of jet airplanes which may be used by field administrators to provide access to headquarters. The scheduling system gives priority to cabinet members, MLAs, and departmental executives. Such individuals may "bump" senior and middle management personnel, and it is reported that the frequency of such "bumping" is such that it discourages reliance on this method of transport. Commercial air service to Victoria is scheduled such that one-day trips to the capital from regional centres and other communities are difficult when not impossible to plan. This reduces the potential for face-to-face communication between field office and headquarters personnel, which in turn reduces the potential for spatial decentralization of authority because of the factors discussed in chapter V.

Finally, there needs to be a break in the cycle whereby field offices are so widely considered to be merely the "eyes, ears and mouth" of government that the young, educated, talented and ambitious personnel leave the field for headquarters positions where they perceive the only opportunities for advancement and input to departmental policy to be. This in turn deprives the field offices of their most competent personnel, begetting even greater lack of confidence in field decision-making abilities.

E. Provincial Policy Alternatives

The policy alternatives for the provincial government are:

(a) Continue with the present policy of departmental autonomy.

(b) Continue with the present policy of departmental autonomy, but provide increased co-ordination to improve total efficiency.

(c) Adopt an explicit dispersion/spatial decentralization policy which promotes centralized growth, either in Victoria or Vancouver.

(d) Adopt a policy which promotes growth in the regional centres.

(e) Adopt a policy which promotes growth in the local communities.

(f) Adopt a policy which promotes growth in specific areas which are identified by economic or other criteria.

Again, it is not possible to evaluate these different options without a clear understanding of the government's values, and without detailed communication, economic, and city-system studies as were conducted in Great Britain and Sweden. It is, however, possible to discuss some of the general implications of these policy directions.

The introduction of increased inter-departmental co-ordination appears to be justified on the basis of improved governmental efficiency. The present *laissez-faire* policy appears to be oriented toward optimization at a sub-organizational (departmental) level, and may result in sub-optimization for the total Public Service organization. The provincial government has attempted co-ordination in the establishment of mutual regional and district boundaries for the resource management departments, and in co-ordinating the location of department offices in the government precincts of Victoria and Kamloops.[8] The extension of such co-ordination exercises should result in increased operational efficiency for the total public service.

The co-ordination of dispersion/spatial decentralization with regional development policies is not as obviously desirable. If such co-ordination is to be done well, costly and technically sophisticated communication and contact-frequency studies need to be conducted, and a long-term program of relocation should be instituted based on the results of the studies. The costs of such a regional

development oriented relocation program are not only in the costs of the studies and organization relocations, but include continued opportunity costs since the resultant spatial patterns may be sub-optimal with regards to organizational efficiency (since non-efficiency criteria are used in establishing locations). There should be obvious political and economic benefits in the receiver communities, but complementary (although theoretically of lesser magnitude) economic disruption and possible political reaction in the source communities. For such a policy to be undertaken, the expected benefits must outweigh the expected costs in the long run.

Since costs and benefits of the relocations will accrue for several years, it is likely that research design based on the more costly Swedish model is justified over the less sophisticated British system, or the unsophisticated Canadian federal studies. However, these costs are only justified if the studies, not other factors, form the real basis for relocation decisions. If, on the other hand, the program is to be a "political porkbarrel," then relatively inexpensive studies such as were used by the Canadian federal government may be used to identify potentially relocatable administrative units. The economic benefits to receiver communities of such a politically oriented relocation program are likely to be limited to direct payroll and its regional economic multiplier effects. It may be that since agglomeration

impacts are subtle and not likely to be appreciated by the general public, a crude relocation program may yield as many political benefits as a program based on careful research and analysis.

Any program which attempts to achieve economic development benefits through spatial distribution of government authority and personnel would be more effective if the policies and program could be co-ordinated with locational decisions of the federal government, institutions of higher education, and other public and private agencies. In attempting to develop agglomeration effects, the number of jobs or even the total amount of authority is less important than how the authority, expertise and technical capabilities complement each other in the various agencies. Since agglomeration economies benefit all parties concerned, it should not be difficult to gain inter-agency co-ordination if one agency (such as the provincial government) were to assume a leadership role.

The impacts on the receiver communities and the province as a whole will vary depending on the agglomeration effects generated. A general movement of operations and authority to Vancouver could, for example, if carefully planned, result in increased potential for that city to attract headquarter offices of national and multinational firms in the private sector. Thus, the goal of such a policy would be to attract economic activity to the province rather than to

modify regional economic differences.

Broad decentralization of authority to the regional centres is not as likely to have growth implications for the province as a whole, but should result in some agglomeration benefits to the receiver communities. Greater agglomeration benefits should accrue if related operations were focussed in specific communities which already have some concentration of similar activities. For example, Prince George could perhaps be developed as a resource management centre, with several related research and technical operations moved to that city. The benefits of relocation in such a program would primarily accrue only to the receiver location, but there could be some attraction of private sector activity to the province.

General decentralization to local communities, or scattered relocation to many communities is likely to be the least effective program from an economic perspective, with few agglomeration effects likely, but it could have significant political or social benefits through "bringing the government closer to the people."

F. Conclusion

A number of alternatives exist to the present *laissez-faire* provincial policy. Without a better understanding of the goals and priorities of the government and of the true costs and benefits inherent in spatial decentralization

patterns, it is impossible to determine which direction policy should take. Even if the government chooses not to link the spatial distribution of its own administrative operations with its regional development policies, it should at least be aware of the relationships that exist between dispersion, spatial decentralization and regional development, and should be aware of the efficiency benefits which could be gained through better co-ordination of departmental spatial patterns. If the government does choose to relate spatial distribution to its regional development program, it should be aware of the costs of any relocation, including losses in efficiency potential, as well as the benefits which might be gained.

The method which was developed to quantify the patterns of dispersion and spatial decentralization may be a useful tool for other studies of the spatial patterns of organizations. This measurement system would be of very limited utility for inter-organizational comparisons, since it relies on the presumed consistency within the Public Service Commission classifications, but it could be used for other studies of private or public sector organizations. This study demonstrates that the method is capable of application in a complex organizational setting, and that it can indicate differences (and similarities) between organizational spatial patterns.

Finally, in conducting this research a number of branches stood out because of the differences between their spatial patterns and that of others which perform similar functions. The spatially decentralized pattern of the Department of Highways' Executive and Support branch indicates a potential for decentralization for the core elements of departmental administration. A more thorough evaluation of the effectiveness and efficiency of this branch may lead to a greater understanding of the costs and benefits of spatial decentralization. Similarly, branches which are less dispersed or decentralized than their functional category counterparts could be studied to determine if their concentration is justified by operational needs, or whether they are overconcentrated or overcentralized (perhaps because of the factors discussed in section VI-C).

The spatial patterns of administrative organizations have not been widely studied by geographers, and it is hoped that this study will provide some contribution to this emerging branch of the discipline.

G. Footnotes

[1]Canada, Department of Regional Economic Expansion, *General Development Agreement: British Columbia*, an intergovernmental policy agreement signed by the federal and provincial governments, March 28, 1977, schedule A.

[2]Davies, "Structural Change and Implicit Regional Development Policies," chapter 5.

[3]If consideration is given to these factors, such was not reported by the departmental personnel contacted, nor by Jerry Woitak, an organizational analyst with the Public Service Commission.

[4]See Baum, *Decentralization of Authority*, chapter 6.

[5]For example, see Simon, *Administrative Behavior;* Baum, *Decentralization of Authority;* and Isard, *General Theory*.

[6]British Columbia, Department of Public Works, Planning and Programming Branch, "Precinct '73."

[7]Ibid.

[8]British Columbia, ELUCS, "Resource Management Regions Study"; British Columbia, Department of Public Works, "Precinct '73"; and British Columbia, Department of Public Works, Planning and Programming Branch, "Kamloops '76," internal report, March 1976.

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APPENDIX A

BRANCHES OF THE BRITISH COLUMBIA PUBLIC SERVICE CATEGORIZED BY TYPE

Branches of the British Columbia Public Service Cateogrized by Type

This list of the branches of the British Columbia Public Service is derived from the breakdowns of departmental expenditures contained in the provincial government's *Estimates of Revenues and Expenditures* for the fiscal year 1976-77. Each department's budget is divided into separate "votes" in order to facilitate debate in the legislature. Generally, each vote represents one branch except where a single vote is composed of an aggregate of administrative units with varying functions, or where a single administrative unit is financed by two or more votes.[2] Adjustments for these situations have been made based on information from the government's staff training manual, *The Organization of the B.C. Public Service: 1977-78*.[3] Where a single vote has been divided into two or more branches, such division is indicated by the use of a lower case letter after the vote number in the list. Where a single branch is financed by two votes, both vote numbers are shown. All votes are accounted for in this list.

Those commissions, crown corporations, or other administrative units which are funded by grants or subsidies rather than through standard public service budgeting procedure are included in the category "Votes with No Public Service," or such grants and subsidies are included in the budget breakdowns of branches in other categories. These

non-departmental units are not studied in this thesis.

Although the government was reorganized in October 1976, with many programs and branches assigned to different departments, the older assignments of departmental responsibility are used in this listing, partially because the branches continued to be financed by their former departments' budgets, and partially because in some departments functional reorganization had not yet taken place at the time of the compilation of this list. For similar reasons, and to avoid confusion, the new names of departments (ministries) have not been used.

The branches have been sorted into five categories to be studied in this thesis, and seven additional categories which were not to be studied. The categorizations were based on the brief description of branches' responsibilities in the provincial *Estimates*. Where these descriptions do not provide an adequate basis for categorization, additional information from the staff training manual was used.

The five categories to be studied are based on those used by Hodgetts in his study of the federal government.[4] The other seven categories were developed to provide vehicles to exclude from the sample those branches which did not need to be studied (those with no public service), are locationally determined by non-administrative functions (Research, Facility or Regional Management, Non-administrative Branches, and Legislative and Ministers' Offices), or are not sampled

for other reasons (Small Branches and Miscellaneous).

From each of the first five categories a sample of six branches was selected by assigning each branch a number, and six were drawn from a table of random numbers.[5] The vote numbers of the branches so selected are underlined in the following list.

VOTE NO.	DEPARTMENT & BRANCH
	1. Departmental Administration and Planning
5	Agriculture; General Administration
11	Attorney General; Administrative and Support
15a	Attorney General; Correction Services Administration
37a	Economic Development; General Administration (except Business and Industrial Development)
40	Education; Departmental Administration and Support Services
49	Environment; General Administration
62	Finance; Administrative and Support Services
64	Finance; Data Processing
75a	Forests; Departmental Administration
75b	Forests; Departmental Support Services
88	Health; Department Executive and Administrative Support
99	Highways and Public Works; General Administration--Highways
101	Highways and Public Works; Highway Construction--Capital
102	Highways and Public Works; General Administration--Public Works
109	Housing; General Administration
114	Human Resources; Departmental Administration
124	Labor; Departmental Administration and Support Services
131	Mines and Petroleum Resources; Deputy Minister's Office
143/46	Municipal Affairs; Administration and Planning
180	Recreation and Travel Industry; General Administration--Recreation
199	Transport and Communications; General Administration
	2. Services for the Public Organization
19	Attorney General; Legal Services to Government
63	Finance; Controlling and Audit Branch
65	Finance; Purchasing Commission
68	Finance; Government Agencies
104	Highways and Public Works; Construction of Provincial Buildings
154	Provincial Secretary; Central Microfilm Bureau
155	Provincial Secretary; Mail Branch

continued

VOTE NO.	DEPARTMENT & BRANCH
159	Provincial Secretary; Queen's Printer
173	Provincial Secretary; Public Service Commission, Administration
175	Provincial Secretary; Superannuation Branch
204	Transport and Communications; Computer and Consulting Service
205	Transport and Communications; Telecommunications Services

3. Resource Management and Development

6	Agriculture; Production and Marketing Program
8	Agriculture; General and Financial Services
27	Attorney General; Land Registry Services
50	Environment; Land Management Branch
54	Environment; Water Resources Administration
59	Environment; Environment and Land Use Committee Secretariat
60	Environment; Provincial Land Commission
76	Forests; Resource Management Program
80	Forests; Forest Protection Program
83	Forests; Range Management Program
132	Mines and Petroleum Resources; Mineral Resources Branch
133	Mines and Petroleum Resources; Petroleum Resources Branch
184	Recreation and Travel Industry; Fish and Wildlife Branch
186	Recreation and Travel Industry; Park Branch--Operations
192	Recreation and Travel Industry; Archaeological and Historic Sites Protection Act
210	Transport and Communications; B.C. Energy Commission

4. Development and Protection of Human Resources

15c	Attorney General; Correction Services, Community Services
26b	Attorney General; Corporate, Financial and Regulatory Services, Public Trustees and Official Administrators
26c	Attorney General; Corporate, Financial and Regulatory Services, Office of the Rentalsman
35	Consumer Services; Community Programs Branch
41	Education; Basic Education K-XII Program
43	Education; Post-Secondary Education--Community Colleges and Others
89a	Health; Community Health Services, Field Administration
93	Health; Hospital Programs
115	Human Resources; Community Services
125	Labor; Manpower Training and Development
157	Provincial Secretary; Library Services
166	Provincial Secretary; Provincial Emergency Program
168	Provincial Secretary; Leisure Services Branch

5. Regulatory Agencies

7a	Agriculture; Special and Regulatory Services Program (except Youth Development)

continued

VOTE NO.	DEPARTMENT & BRANCH
26a	Attorney General; Corporate, Financial and Regulatory Services
29	Attorney General; Liquor Control and Licensing Board
34	Consumer Services; Trade Practices Branch
57	Environment; Pollution Control Branch
82	Forests; Scaling Program
106	Highways and Public Works; Safety Inspection Division
127	Labor; Occupational Environment and Compensation Advisory Services
129	Labor; Labor Relations Board
200	Transport and Communications; Engineering Branch
201	Transport and Communications; Weigh Scale Branch
202	Transport and Communications; Motor Vehicle Branch
203	Transport and Communications Motor Carrier Branch

6. Legislative and Ministers' Offices

1	Legislation
2	Executive Council
3	Agriculture; Minister's Office
10	Attorney General; Minister's Office
30	Consumer Services; Minister's Office
36	Economic Development; Minister's Office
39	Education; Minister's Office
48	Environment; Minister's Office
61	Finance; Minister's Office
74	Forests; Minister's Office
86	Health; Minister's Office
98	Highways and Public Works; Minister's Office
108	Housing; Minister's Office
113	Human Resources; Minister's Office
123	Labor; Minister's Office
130	Mines and Petroleum Resources; Minister's Office
142	Municipal Affairs; Minister's Office
152	Provincial Secretary; Minister's Office
156	Provincial Secretary; Legislative Library
179	Recreation and Travel Industry; Minister's Office
198	Transport and Communications; Minister's Office

7. Non-Administrative Branches

12	Attorney General; Courts
13	Attorney General; Crown Counsel
14	Attorney General; Police Services
15b	Attorney General; Corrections Services, Institutional Services
15f	Attorney General; Family and Children's Courts
20	Attorney General; Provincial Court Judiciary
21	Attorney General; Coroners
77	Forests; Reforestation Program
79	Forests; Fire Suppression Program

continued

VOTE NO.	DEPARTMENT & BRANCH
84	Forests; Forest Development Roads Program
85	Forests; Reservoir Waterway Improvements Program
89b	Health; Local Health Services (other than Field Administration)
90	Health; Special Health Services
95	Health; Forensic Psychiatric Services
97	Health; Emergency Health Services
100	Highways and Public Works; Highway Maintenance
103b	Highways and Public Works; Government Buildings Maintenance
116b	Human Resources; Services for Families and Children, Treatment
121	Human Resources; Special Programs for the Retarded
163	Provincial Secretary; Public Inquiries Act
165	Provincial Secretary; Provincial Elections Act
187	Recreation and Travel Industry; Parks Branch--Capital Program
191	Recreation and Travel Industry; Youth Crew Program
197	Recreation and Travel Industry; Film and Photographic Production
208	Transport and Communications; Air Services

8. Votes with No Public Service

17	Attorney General; Legal Services Commission
24	Attorney General; Criminal Injuries Compensation Act
25	Attorney General; Liquor Control Board
38	Economic Development; Grants
42	Education; Post-Secondary Education--Universities
45	Education; Teacher Pension Fund
47	Education; Advances re Rural School Taxes
67	Finance; Assessment Appeal Board
69	Finance; Interest on the Public Debt
70	Finance; Grants, Contributions and Subsidies
71	Finance; Interest on Funds and Deposits
72	Finance; Incidentals
73	Finance; Salary Contingencies
96	Health; Medical Services Commission
110	Housing; Construction of Homes for Elderly Citizens
111	Housing; Housing and Development
112	Housing; Appropriation for the Provincial Home Acquisition Act
116a	Human Resources; Services for Families and Children (except Residential and Treatment Programs)
118	Human Resources; Health Care Services
119	Human Resources; Community Programs
120	Human Resources; Income Assistance Program
137	Mines and Petroleum Resources; Prospectors Assistance Program
138	Mines and Petroleum Resources; Mineral Research Program
139	Mines and Petroleum Resources; Mineral Data Program
140	Mines and Petroleum Resources; Mineral Employment Program
141	Mines and Petroleum Resources; Energy Research Evaluation Program
151	Municipal Affairs; Grants and Subsidies

continued

VOTE NO.	DEPARTMENT & BRANCH
164	Provincial Secretary; Grants, Special Services and Events
169	Provincial Secretary; Unemployment Insurance and Workman's Compensation Act
171	Provincial Secretary; Distribution of Government Publications
172	Provincial Secretary; Public Information
174	Provincial Secretary; Employee Benefits
176	Provincial Secretary; Public Service Superannuation
177	Provincial Secretary; Members of the L.A. Superannuation Act
178	Provincial Secretary; Municipal Superannuation Act
188	Recreation and Travel Industry; Grants in Aid of Regional Park Development
189	Recreation and Travel Industry; Pacific Rim National Park
	9. Research
15d	Attorney General; Corrective Services, Research for Staff Training
28	Attorney General; Rent Review Commission
51	Environment; Surveys and Mapping
56	Environment; Water Investigations Branch
58	Environment; Environmental Laboratory
78	Forests; Research Program
81	Forests; Inventory Program
158	Provincial Secretary; Provincial Archives
	10. Small Branches[6]
4	Agriculture; Deputy Minister's Office
7b	Agriculture; Special Program (Youth Development)
9	Agriculture; Milk Board
15e	Attorney General; Corrections Service, Inspection and Standards
16	Attorney General; Justice Councils
18	Attorney General; Justice Development Commission
22	Attorney General; British Columbia Parole Board
23	Attorney General; Law Reform Commission
31	Consumer Services; Deputy Minister's Office
32	Consumer Services; Administrative Services Branch
33	Consumer Services; Legal Services Branch
44	Education; Student Aid Programs
46	Education; Metric Conversion
55	Environment; Dykes Maintenance
87	Health; Deputy Minister's Office and Departmental Support Services
91	Health; Other Health Care Expenditures
92	Health; Office of the Deputy Minister of Medical and Hosptial Programs
103a	Highways and Public Works; Government Buildings Maintenance Administration
105	Highways and Public Works; Rentals

continued

VOTE NO.	DEPARTMENT & BRANCH
117	Human Resources; Services for Senior Citizens and Handicapped Persons
126	Labor; Employment Programs
148/50	Municipal Services; Transit Services
153	Provincial Secretary; General Administration
162	Provincial Secretary; Indian Advisory Act
167	Provincial Secretary; Provincial Lottery Branch
181	Recreation and Travel Industry; Information and Education Branch
182	Recreation and Travel Industry; Marine Resources Branch
183	Recreation and Travel Industry; Fisheries Enhancement Program
191	Recreation and Travel Industry; Outdoor Recreation Branch
193	Recreation and Travel Industry; General Administration--Travel
206	Transport and Communications; Communication Systems Development
207	Transport and Communications; Motor Carrier Commission
209	Transport and Communications; Transportation Research and Planning
	11. Facility or Regional Management
52-53	Environment; University Endowment Lands
94	Health; Government Institutions
107	Highways and Public Works; Glendale Laundry Operation
122	Human Resources; Burns Lake Community Development Association
147	Municipal Affairs; Islands Trust
160	Provincial Secretary; Government House
170	Provincial Secretary; Provincial Museum
185	Recreation and Travel Industry; Creston Valley Management Authority
	12. Miscellaneous
37b	Economic Development; Business and Industrial Development
66	Finance; Taxation Administration
161	Provincial Secretary; Agent-General's Office and B.C. House
194	Recreation and Travel Industry; Travel Division
195	Recreation and Travel Industry; Beautiful B.C. Magazine
196	Recreation and Travel Industry; California and London Offices
211	Transport and Communication; B.C. Ferries

Footnotes

[1]British Columbia, *Estimates of Revenue and Expenditure, Fiscal Year Ending March 31, 1977* (Victoria: Queen's Printer, 1976).

[2]It should be noted that the use of the word "branch" here does not necessarily conform to the use of that word in the government's organization. In some departments of the provincial government, "branch" is used to refer to administrative units far smaller than the units here described and words like "program" or "division" are used to label what is here called a branch.

[3]British Columbia, Public Service Commission, Staff Training Division, "The Organization of the B.C. Public Service: 1977-78," Staff Training Manual (Victoria: Public Service Commission, 1977).

[4]John E. Hodgetts, *The Canadian Public Service*, Decision-Making in Canada Series (Toronto: University of Toronto Press, 1973). In particular, see chapters 5 and 8, Allocation of Programmes and Internal Division of Labor.

[5]George W. Snedecor, "Five Thousand Random Digits," Appendix VI to *Statistical Reasoning in Sociology*, 2nd edition, by John H. Mueller, Karl F. Schuessler and Herbert L. Costner (Boston: Houghton Mifflin, 1970), pp. 452-454.

[6]"Small Branches" are those with fewer than 20 established positions, or $300,000 salary and wages.

APPENDIX B

DATA WORKSHEETS

Functional category I

Department Attorney General

Branch Administration and Support

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	2	50 250						
Band D	2	32 128	1	16 64				
Band C	7	63 189	4	36 108				
Band B	8	32 64	9	36 72				
Band A	20	20 20	8	8 8				
Band O	31		6					
Totals	70	197 651	28	96 252				

Indices of Dispersion

outside Victoria 29

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 33

outside Vic-Vanc. 00

linear regresion 00

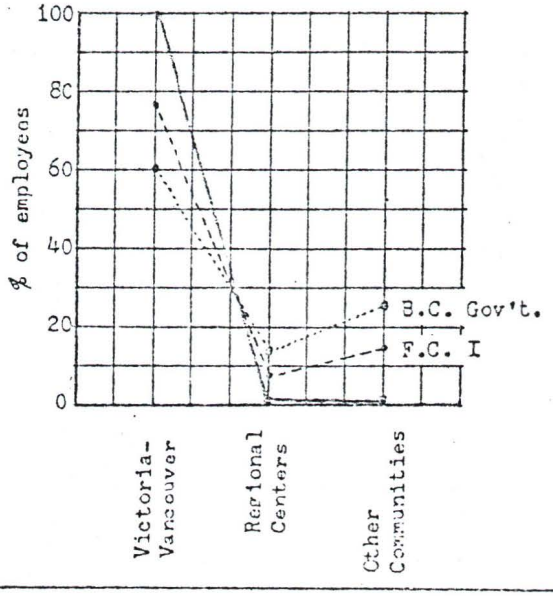
Cubic:

outside Victoria 28

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category I

Department Environment

Branch General Administration

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	5	125						
		625						
Band D	3	48						
		192						
Band C	4	36						
		108						
Band B	10	40						
		80						
Band A	19	19						
		19						
Band O	24							
Totals	65	269						
		1024						

Indices of Dispersion

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

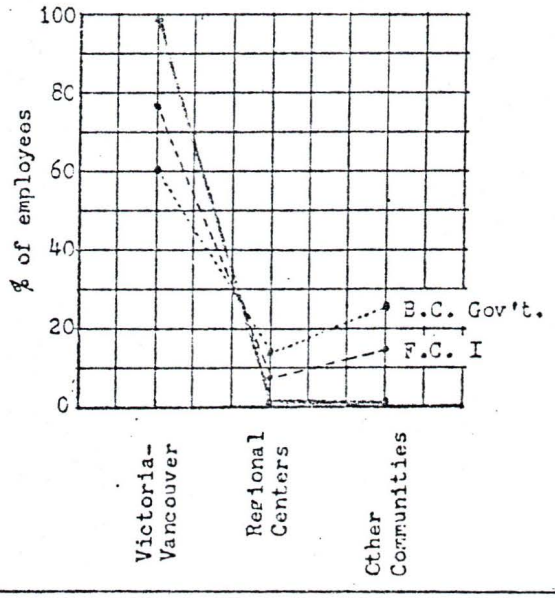
Cubic:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category I

Department Highways and Public Works

Branch Executive and Support Services-Highways

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	18	450 2250	2	50 250	5	125 625	1	25 125
Band D	9	144 576	4	64 256	5	80 320	4	64 256
Band C	26	234 702	6	54 162	15	135 405	28	252 756
Band B	47	188 376	8	32 64	12	48 96	31	124 248
Band A	68½	68½ 68½	19	19 19	23	23 23	38	38 38
Band O	48		21		25		52½	
Totals	216½	1084½ 3972½	60	219 751	85	411 1459	154½	503 1423

Indices of Dispersion

outside Victoria 58

outside Vic-Vanc. 46

linear regresion 38

Indices of Spatial Decentralization

Geometric:

outside Victoria 51

outside Vic-Vanc. 41

linear regresion 32

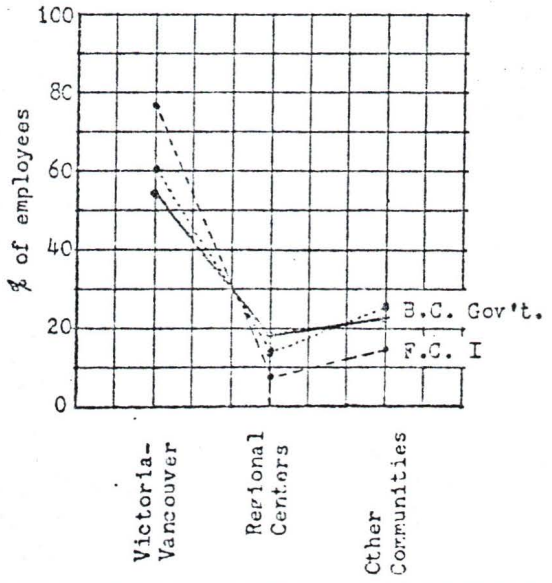
Cubic:

outside Victoria 48

outside Vic-Vanc. 38

linear regresion 28

Dispersion Graph



Notes:

Functional category I

Department Human Resources

Branch Central and Program Administration

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	8	200 1000						
Band D	13	208 832	1	16 64				
Band C	27	243 729	6	54 162				
Band B	35	140 280	2	8 16			1	4 8
Band A	92⅓	92⅓ 92⅓	27	27 27	10	10 10	22	22 22
Band O	135⅓		6					
Totals	311	2963⅓ 2963⅓	42	185 360	10	10 10	23	26 30

Indices of Dispersion

outside Victoria 19

outside Vic-Vanc. 09

linear regresion 07

Indices of Spatial Decentralization

Geometric:

outside Victoria 14

outside Vic-Vanc. 04

linear regresion 03

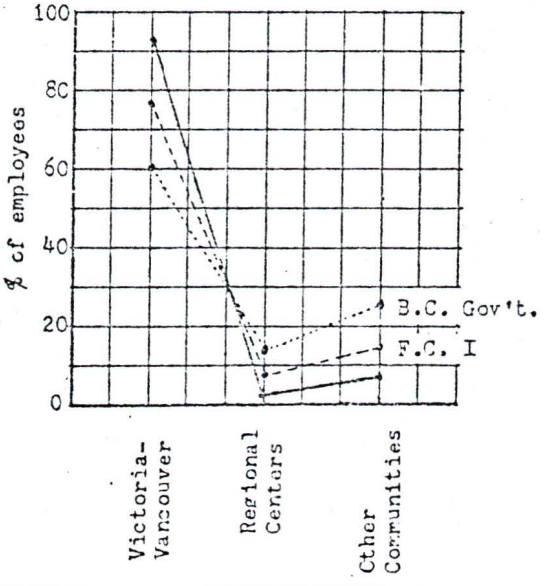
Cubic:

outside Victoria 10

outside Vic-Vanc. 01

linear regresion 01

Dispersion Graph



Notes:

Functional category I

Department Labour

Branch Administration and Support Services

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	5	25 125	2	10 50				
Band D	2	0 32						
Band C	3	9 27	1	3 9				
Band B	10	20 40	5	10 20				
Band A	11	11 11	1	1 1				
Band O	10		2					
Totals	41	33 225	11	24 90				

Indices of Dispersion

outside Victoria 21

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 25

outside Vic-Vanc. 00

linear regresion 00

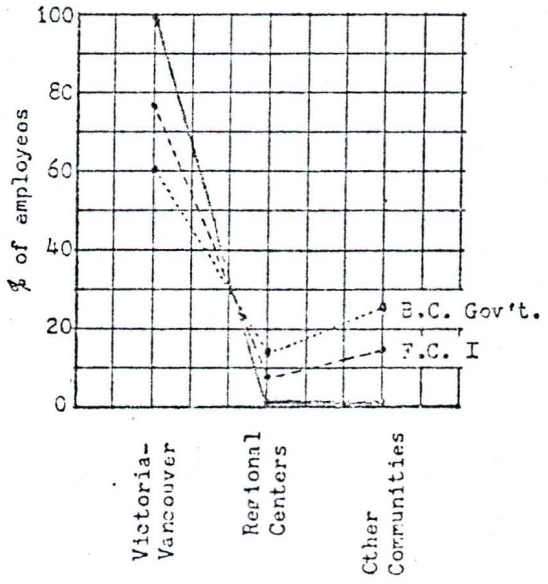
Cubic:

outside Victoria 25

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category I

Department Recreation and Travel

Branch General Administration-Recreation

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	3	25 325						
Band D	3	48 192						
Band C	4	36 108						
Band B	7	28 56						
Band A	19	19 19						
Band O	15							
Totals	51	206 750						

Indices of Dispersion

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

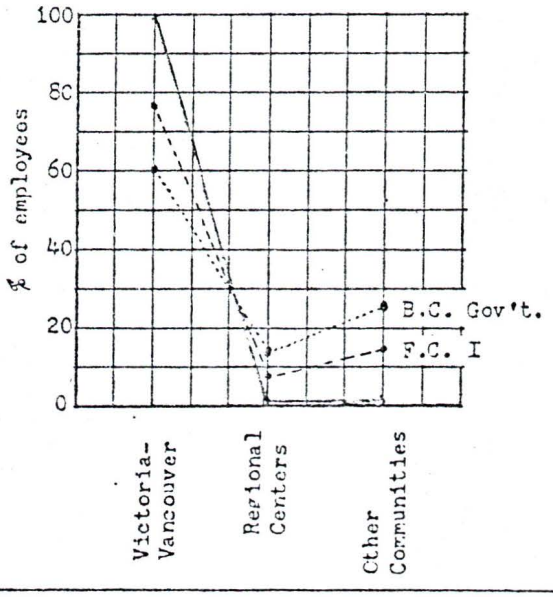
Cubic:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category II

Department Attorney General

Branch Legal Services to Government

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	1	25 125						
Band D	5	80 220						
Band C	9	81 243						
Band B	19	28 56						
Band A	19	19 19						
Band O	2							
Totals	53	233 363						

Indices of Dispersion

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

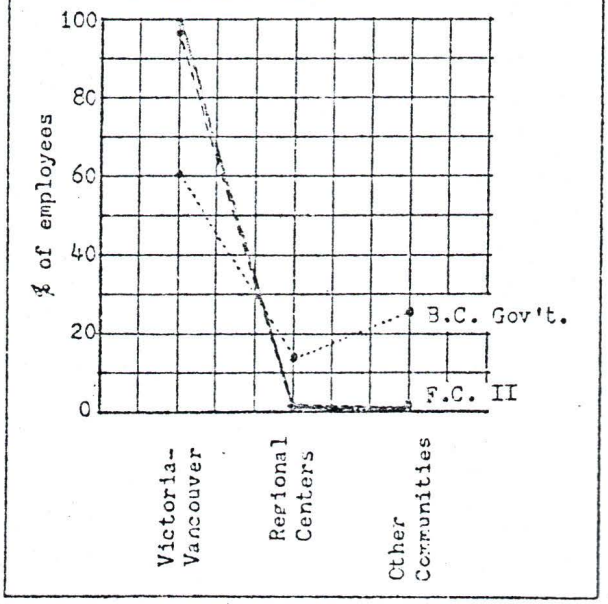
Cubic:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category II

Department Finance

Branch Controlling and Audit

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	3	75 375						
Band D	7	112 448	3	48 192				
Band C	14	126 322	14	126 378				
Band B	35	140 280	19	76 152				
Band A	48	48 48						
Band O	28		1					
Totals	135	501 1599	37	250 722				

Indices of Dispersion

outside Victoria 17

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 33

outside Vic-Vanc. 00

linear regresion 00

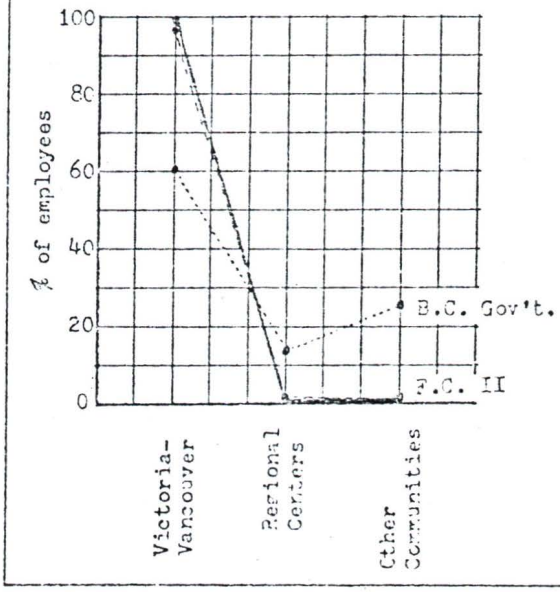
Cubic:

outside Victoria 32

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category II

Department Finance

Branch Purchasing Commission

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D								
Band C	3	27 31	1	9 27				
Band B	14	56 112	6	24 48				
Band A	19	19 19	8	8 8				
Band O	33		9					
Totals	69	102 246	24	81 92				

Indices of Dispersion

outside Victoria 26

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 29

outside Vic-Vanc. 00

linear regresion 00

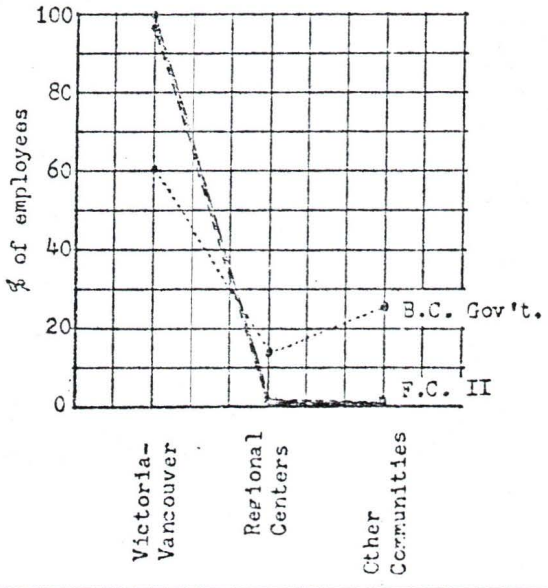
Cubic:

outside Victoria 28

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category II

Department Highways and Public Works

Branch Construction of Public Buildings

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	3	48 192						
Band C	31	279 837	1	9 27				
Band B	95	380 760	2	8 16				
Band A	20	20 20	1	1 1				
Band O	10							
Totals	159	737 1893	4	13 44				

Indices of Dispersion

outside Victoria 02

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 02

outside Vic-Vanc. 00

linear regresion 00

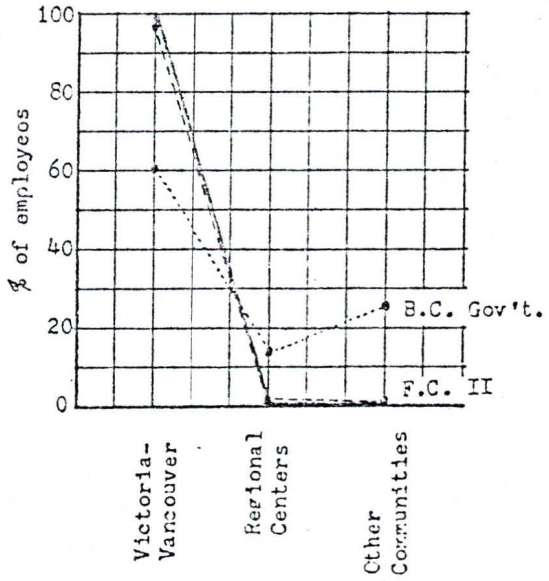
Cubic:

outside Victoria 02

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category II

Department Provincial Secretary

Branch Public Service Commission-Administration

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	3	25 375						
Band D	5	80 320					1	16 64
Band C	9	81 243	2	18 54	3	27 81	1	9 27
Band B	19	24 152	3	12 24	1	4 8	2	8 16
Band A	19	19 19	3	3 3	3	3 3	1	1 1
Band O	20		3		3		2	
Totals	75	331 1109	11	33 81	10	34 92	7	35 109

Indices of Dispersion

outside Victoria 25

outside Vic-Vanc. 17

linear regresion 12

Indices of Spatial Decentralization

Geometric:

outside Victoria 23

outside Vic-Vanc. 16

linear regresion 12

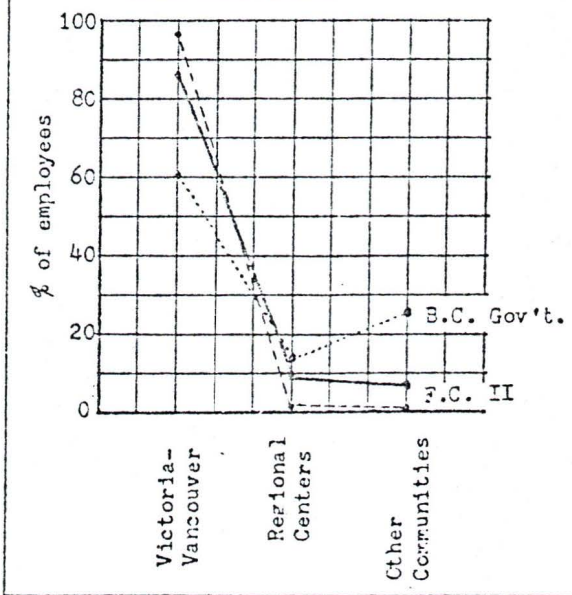
Cubic:

outside Victoria 20

outside Vic-Vanc. 14

linear regresion 11

Dispersion Graph



Notes:

Functional category II

Department Provincial Secretary

Branch Queen's Printer-Administration

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	2	32 128						
Band C	1	9 27						
Band B	2	8 16						
Band A	7	7 7						
Band O	15							
Totals	27	56 178						

Indices of Dispersion

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

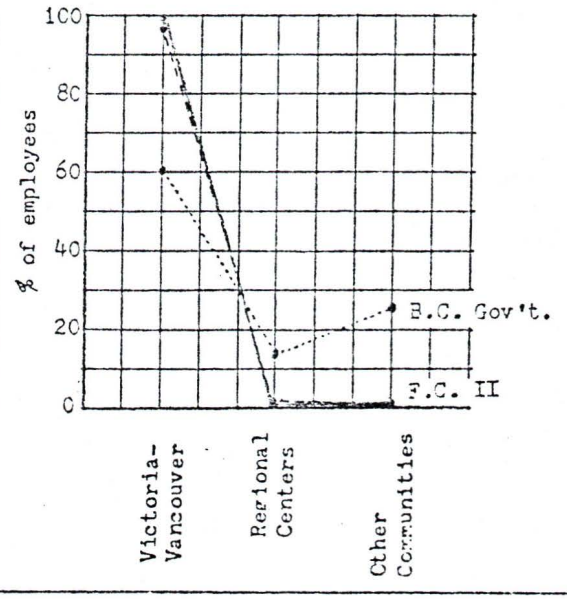
Cubic:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Functional category III

Department Agriculture

Branch General and Financial Services

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	1	25 125						
Band D	6	24 294					1	16 64
Band C	3	27 81					5	45 135
Band B	6	24 48	1	4 8	6	24 48	14	56 112
Band A	10	10 10					4	4 4
Band O	2						2	
Totals	28	182 642	1	4 8	6	24 48	26	121 315

Indices of Dispersion

outside Victoria 54

outside Vic-Vanc. 52

linear regresion 48

Indices of Spatial Decentralization

Geometric:

outside Victoria 45

outside Vic-Vanc. 44

linear regresion 40

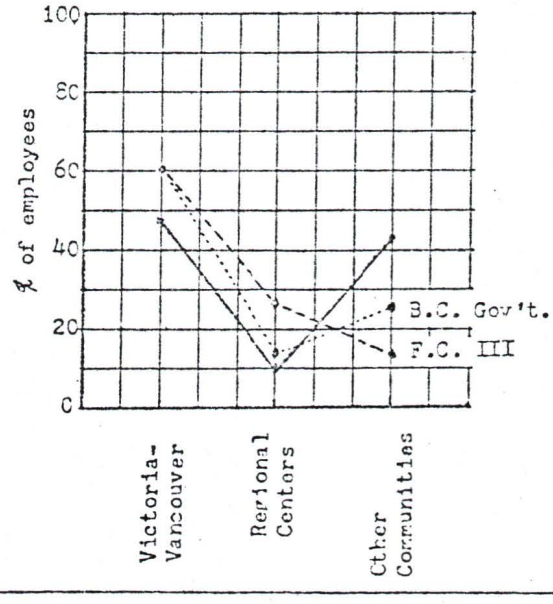
Cubic:

outside Victoria 36

outside Vic-Vanc. 36

linear regresion 33

Dispersion Graph



Notes:

Functional category III

Department Attorney General

Branch Land Registry

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	1	16 48	2	32 128	2	32 128		
Band C	2	18 54	4	36 108	5	45 135	1	9 27
Band B	22	88 176	53	212 424	24	96 192	3	12 24
Band A	21	21 21	39	39 39	22	22 22		
Band C	11		44		24		5	
Totals	57	143 315	142	313 627	77	195 477	9	21 51

Indices of Dispersion

outside Victoria	.80
outside Vic-Vanc.	.30
linear regresion	.17

Indices of Spatial Decentralization

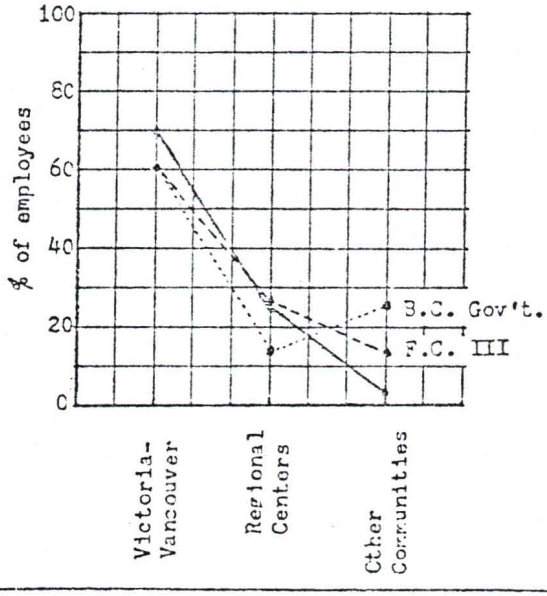
Geometric:

outside Victoria	.79
outside Vic-Vanc.	.32
linear regresion	.17

Cubic:

outside Victoria	.80
outside Vic-Vanc.	.34
linear regresion	.19

Dispersion Graph



Notes:

Functional category III

Department Environment

Branch Water Resources Administration

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	2	50 / 250						
Band D	7	112 / 448			4	64 / 256		
Band C	13	117 / 351	3	27 / 81	12	108 / 324		
Band B	19	76 / 152	4	16 / 32	19	76 / 152	3	12 / 24
Band A	24	24 / 24	1	1 / 1	7	7 / 7		
Band O	10				2			
Totals	75	379 / 972	8	44 / 114	44	255 / 739	3	12 / 24

Indices of Dispersion

outside Victoria 42

outside Vic-Vanc. 36

linear regresion 19

Indices of Spatial Decentralization

Geometric:

outside Victoria 45

outside Vic-Vanc. 39

linear regresion 20

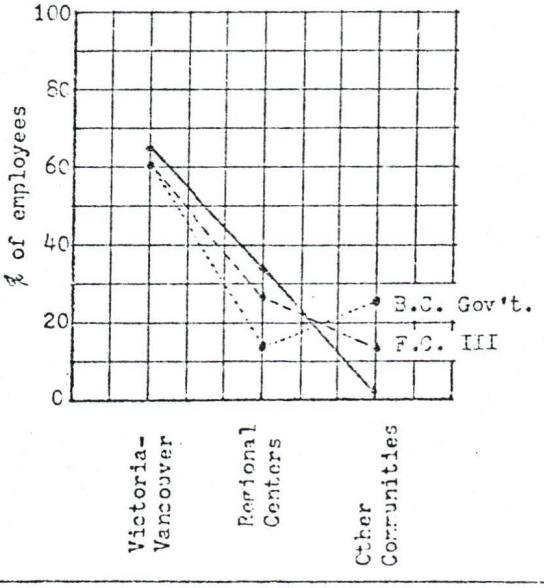
Cubic:

outside Victoria 47

outside Vic-Vanc. 41

linear regresion 21

Dispersion Graph



Notes:

Functional category III

Department Forests

Branch Forests Protection Program

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	1	25 125						
Band D	3	48 192	2	32 128	6	24 96	4	64 256
Band C	8	72 216	6	54 162	18	162 486	11	99 297
Band B	7	28 56	1	4 8	6	24 48	3	12 24
Band A	4	4 4	1	1 1	6	6 6	5	5 5
Band C	4		1		1			
Totals	27	177 593	11	91 323	37	289 824	23	180 582

Indices of Dispersion

outside Victoria 72

outside Vic-Vanc. 61

linear regresion 42

Indices of Spatial Decentralization

Geometric:

outside Victoria 74

outside Vic-Vanc. 64

linear regresion 44

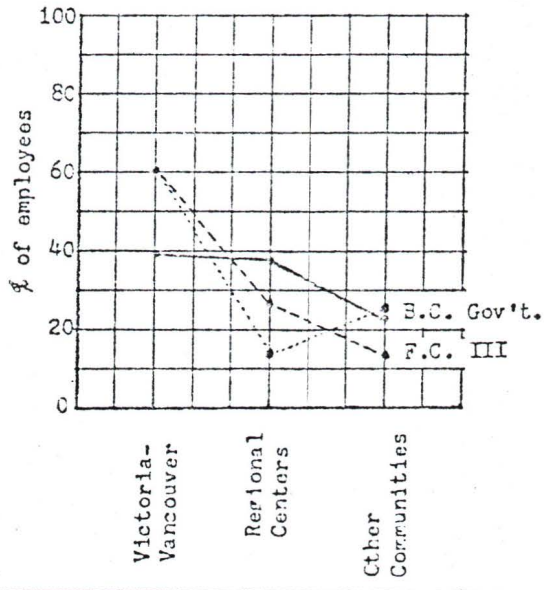
Cubic:

outside Victoria 75

outside Vic-Vanc. 63

linear regresion 44

Dispersion Graph



Notes:

Functional category III

Department Forestry

Branch Range Management Program

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	1	25 125						
Band D	2	32 124						
Band C	2	18 54			4	36 108	2	18 54
Band B					9	36 72	7	28 56
Band A	1	1 1			6	6 6	5	5 5
Band O	1						1	
Totals	7	76 304			19	78 186	15	51 115

Indices of Dispersion

outside Victoria 83

outside Vic-Vanc. 83

linear regresion 60

Indices of Spatial Decentralization

Geometric:

outside Victoria 63

outside Vic-Vanc. 63

linear regresion 44

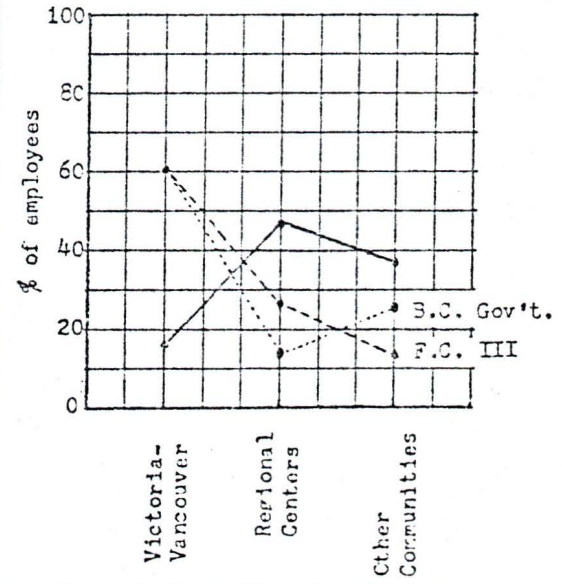
Cubic:

outside Victoria 50

outside Vic-Vanc. 50

linear regresion 34

Dispersion Graph



Notes:

Functional category III

Department Mines and Petroleum Resources

Branch Petroleum Resources Branch

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	4	100 509					1	25 125
Band D	6	36 384						
Band C	9	72 216						
Band B	9	36 72					6	24 48
Band A	12	12 12					4	4 4
Band O	8							
Totals	47	316 1184					11	53 177

Indices of Dispersion

outside Victoria 19

outside Vic-Vanc. 19

linear regresion 19

Indices of Spatial Decentralization

Geometric:

outside Victoria 14

outside Vic-Vanc. 14

linear regresion 14

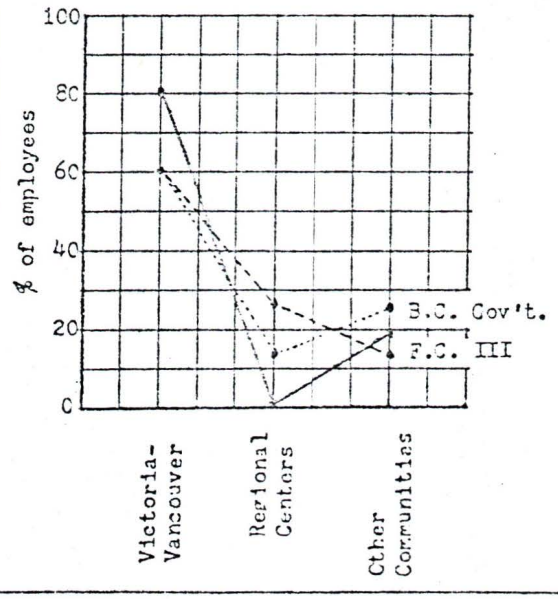
Cubic:

outside Victoria 13

outside Vic-Vanc. 13

linear regresion 13

Dispersion Graph



Notes:

Functional category IV

Department Consumer Services

Branch Community Programs Branch

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	1	4						
		16						
Band C	3	9						
		27						
Band B	7	14						
		28						
Band A	3	3						
		3						
Band O	5		1		2			
Totals	19	30	1		2			
		74						

Indices of Dispersion

outside Victoria 14

outside Vic-Vanc. 09

linear regresion 05

Indices of Spatial Decentralization

Geometric:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

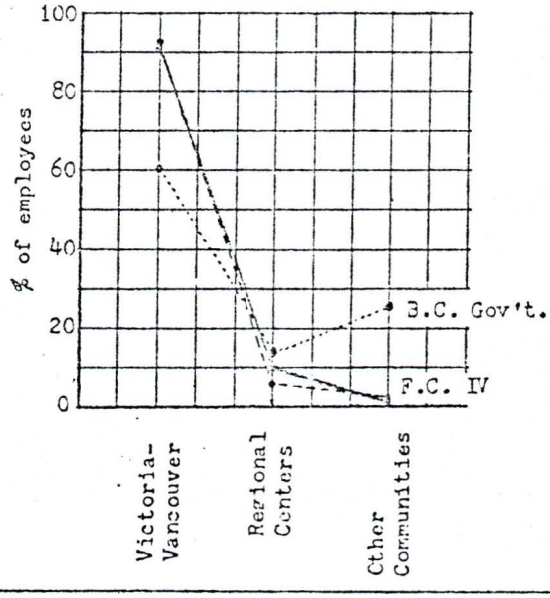
Cubic:

outside Victoria 00

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

The sample excludes Debt Services, which is now a separate branch.

The dispersed "O" level employees are supervised by employees from another branch.

Functional category IV

Department Consumer Services

Branch Corporate, Financial, and Regulatory Services

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	2	50	2	50				
		250		250				
Band D	5	80	1	16				
		320		64				
Band C	13	117	10	90				
		351		270				
Band B	24	96	24	96				
		192		192				
Band A	38	38	20	20				
		38		20				
Band O	51		17					
Totals	133	331	74	222				
		1151		826				

Indices of Dispersion

outside Victoria 36

outside Vic-Vanc. 00

linear regresion 00

Indices of Spatial Decentralization

Geometric:

outside Victoria 43

outside Vic-Vanc. 00

linear regresion 00

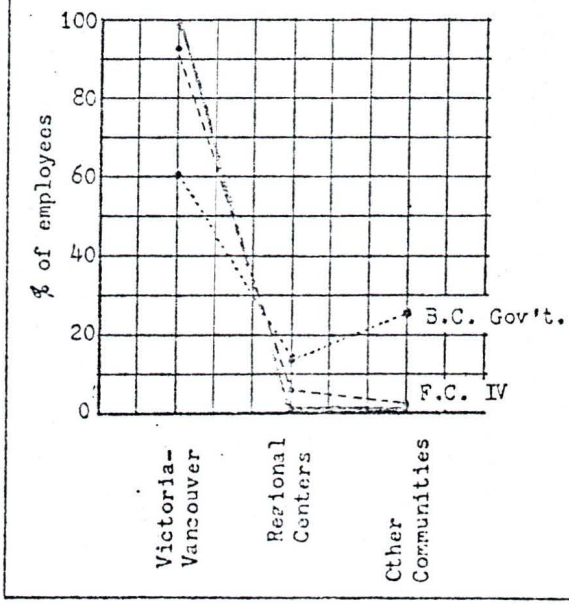
Cubic:

outside Victoria 41

outside Vic-Vanc. 00

linear regresion 00

Dispersion Graph



Notes:

Formerly with the Attorney General Department.

Functional category IV

Department Health

Branch Hospital Programs

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	5	125 625						
Band D	9	144 576						
Band C	28	252 756						
Band B	63	252 504	3	12 24	4	16 32		
Band A	51	51 51	1	1 1				
Band O	55		1					
Totals	211	925 2513	5	13 25	4	16 32		

Indices of Dispersion

outside Victoria 04

outside Vic-Vanc. 02

linear regresion 01

Indices of Spatial Decentralization

Geometric:

outside Victoria 03

outside Vic-Vanc. 02

linear regresion 01

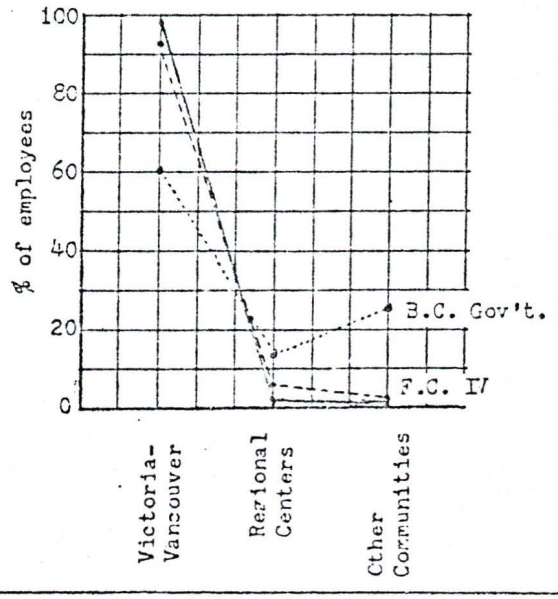
Cubic:

outside Victoria 02

outside Vic-Vanc. 01

linear regresion 01

Dispersion Graph



Notes:

Functional category IV

Department Labour

Branch Job Training and Employment Opportunities

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E			2	50				
				350				
Band D	1	16	3	43				
		64		133				
Band C	2	18	11	99	2	18		
		54		297		54		
Band B	7	22	29	116	8	32		
		56		232		64		
Band A	1	1	9	9				
		1		9				
Band O	4		26		5			
Totals	15	63	80	322	15	50		
		125		630		118		

Indices of Dispersion

outside Victoria 86

outside Vic-Vanc. 14

linear regresion 07

Indices of Spatial Decentralization

Geometric:

outside Victoria 86

outside Vic-Vanc. 12

linear regresion 06

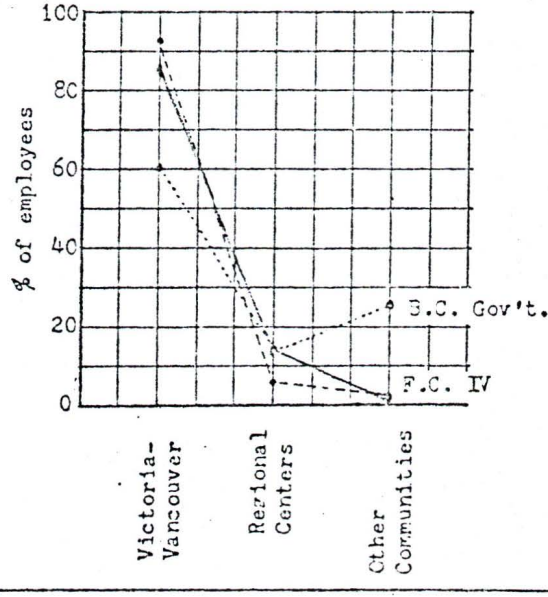
Cubic:

outside Victoria 86

outside Vic-Vanc. 09

linear regresion 05

Dispersion Graph



Notes:

Formerly, Manpower Training and Development.

Functional category IV

Department Provincial Secretary

Branch Provincial Emergency Program

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	1	16 44						
Band C	4	36 103						
Band B	7	28 54	2	8 16	2	8 16	1	4 8
Band A	4	4 4	1	1 1			1	1 1
Band O	6		1		4		1	
Totals	22	84 233	4	9 17	10	8 16	3	4 9

Indices of Dispersion

outside Victoria 44

outside Vic-Vanc. 33

linear regresion 21

Indices of Spatial Decentralization

Geometric:

outside Victoria 20

outside Vic-Vanc. 11

linear regresion 08

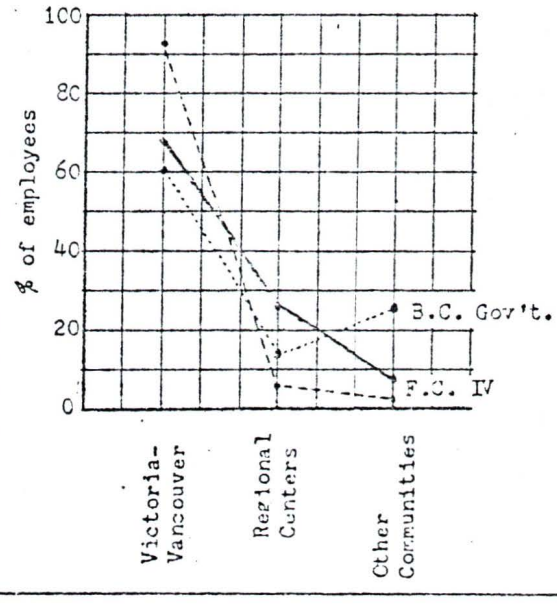
Cubic:

outside Victoria 15

outside Vic-Vanc. 09

linear regresion 06

Dispersion Graph



Notes:

Functional category IV

Department Recreation and Conservation

Branch Library Services

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	1	16 64						
Band C	4	36 108	1	9 27	1	9 27	2	18 54
Band B	1	4 8	1	4 8	1	4 8		
Band A	9	9 9	4	4 4	2	2 2	3	3 3
Band O	6		1		3		6	
Totals	21	65 130	7	17 39	7	15 37	11	21 57

Indices of Dispersion

outside Victoria 54

outside Vic-Vanc. 39

linear regresion 32

Indices of Spatial Decentralization

Geometric:

outside Victoria 45

outside Vic-Vanc. 31

linear regresion 24

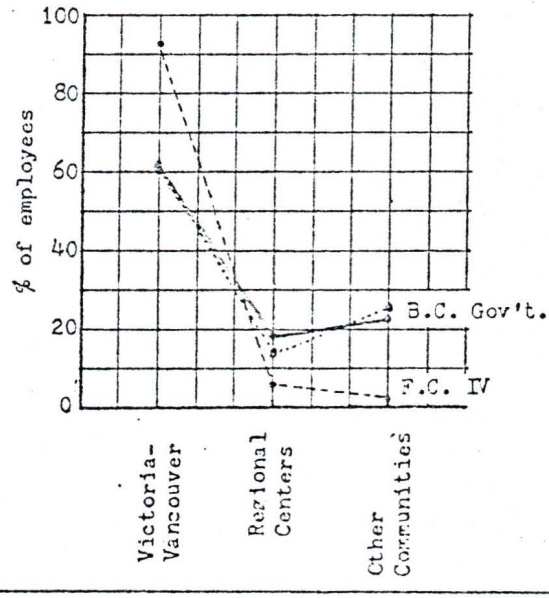
Cubic:

outside Victoria 41

outside Vic-Vanc. 29

linear regresion 33

Dispersion Graph



Notes:

Formerly this branch was in the Provincial Secretary Department.

Functional category V

Department Agriculture

Branch Specialist and Regulatory Services Program

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	1	25 125						
Band D	4	64 256					1	16 64
Band C	2	18 54			2	18 54	8	72 216
Band B	2	8 16	12	48 96	12	48 96	43	172 344
Band A	6	6 6	2	2 2			1	1 1
Band O	1		5				3	
Totals	16	121 459	19	50 98	14	66 140	56	261 625

Indices of Dispersion

outside Victoria 85

outside Vic-Vanc. 67

linear regresion 60

Indices of Spatial Decentralization

Geometric:

outside Victoria 76

outside Vic-Vanc. 66

linear regresion 59

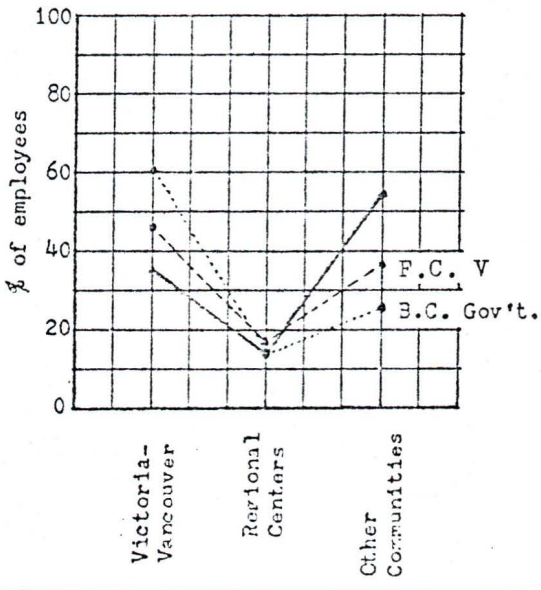
Cubic:

outside Victoria 65

outside Vic-Vanc. 59

linear regresion 53

Dispersion Graph



Notes:

Functional category V

Department Consumer Services

Branch Liquor Control and Licencing

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E	1	25 125						
Band D	2	32 128						
Band C	2	18 54	3	37 91	2	18 54		
Band B	5	30 40	5	20 40	3	12 24	3	12 24
Band A	5	5 5	2	2 2				
Band O	10		1					
Totals	25	100 356	11	59 133	5	30 78	3	12 24

Indices of Dispersion

outside Victoria 43

outside Vic-Vanc. 18

linear regresion 13

Indices of Spatial Decentralization

Geometric:

outside Victoria 48

outside Vic-Vanc. 22

linear regresion 14

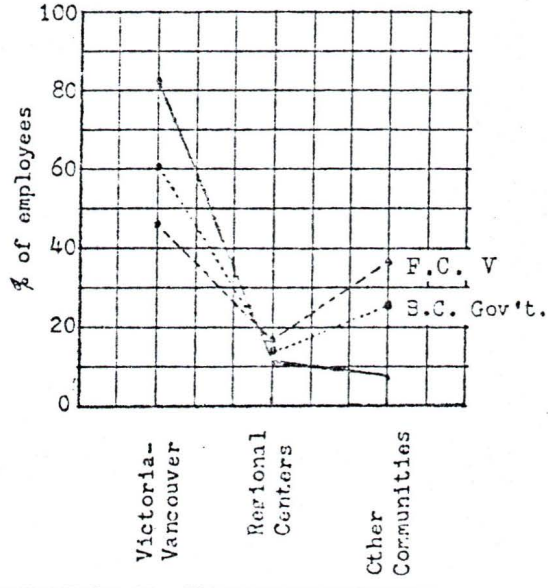
Cubic:

outside Victoria 39

outside Vic-Vanc. 18

linear regresion 11

Dispersion Graph



Notes:

Formerly this branch was in the Attorney General Department.

Functional category V

Department Consumer Services

Branch Trade Practices

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D	1	16 64						
Band C	2	18 54	1	3 27	2	18 54		
Band B	4	16 32	1	4 8	3	12 24		
Band A	5	5 5	1	5 5	3	3 3		
Band O	7		2		1			
Totals	19	55 155	9	12 40	9	33 81		

Indices of Dispersion

outside Victoria 49

outside Vic-Vanc. 24

linear regresion 12

Indices of Spatial Decentralization

Geometric:

outside Victoria 48

outside Vic-Vanc. 31

linear regresion 16

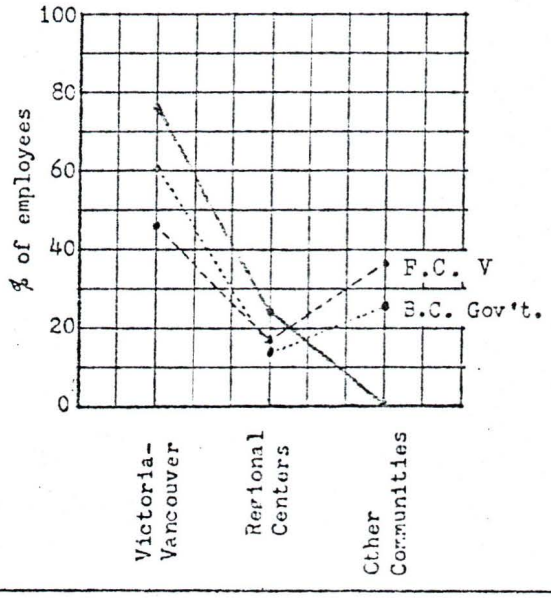
Cubic:

outside Victoria 44

outside Vic-Vanc. 29

linear regresion 15

Dispersion Graph



Notes:

Functional category V

Department Highways and Public Works

Branch Safety Inspection

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E			4	100				
				600				
Band D	1	16	4	40				
		64		256				
Band C	2	18	2	18	1	0		
		54		54		27		
Band B	8	32	53	212	31	124	44	176
		64		424		248		352
Band A	3	3	11	11	4	4	2	2
		3		11		4		2
Band O	2		18		6		9½	
Totals	16	69	92	305	42	137	55½	178
		185		1345		279		354

Indices of Dispersion

outside Victoria 82

outside Vic-Vanc. 47

linear regresion 37

Indices of Spatial Decentralization

Geometric:

outside Victoria 91

outside Vic-Vanc. 40

linear regresion 31

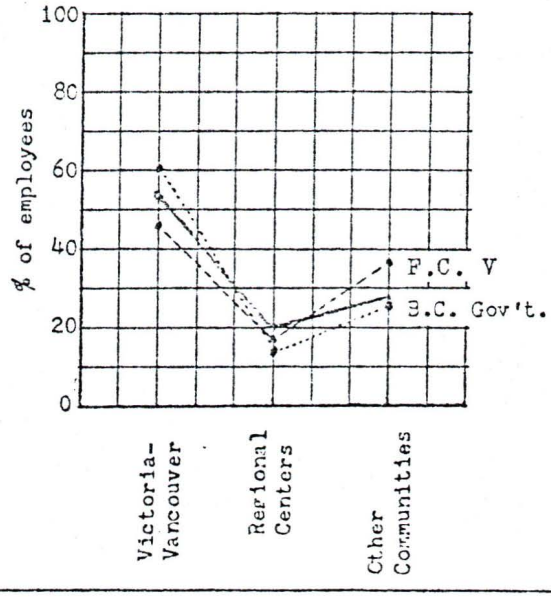
Cubic:

outside Victoria 91

outside Vic-Vanc. 27

linear regresion 20

Dispersion Graph



Notes:

Functional category V

Department Transport and Communication

Branch Engineering

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E			1	25 125				
Band D			2	32 128				
Band C			3	27 81				
Band B			9	36 72	1	4 8	2	8 16
Band A			2	2 2	1	1 1		
Band O			1					
Totals			18	323 493	2	5 9	2	8 16

Indices of Dispersion

outside Victoria 1.00

outside Vic-Vanc. 18

linear regresion 14

Indices of Spatial Decentralization

Geometric:

outside Victoria . . . 1.00

outside Vic-Vanc. 10

linear regresion 08

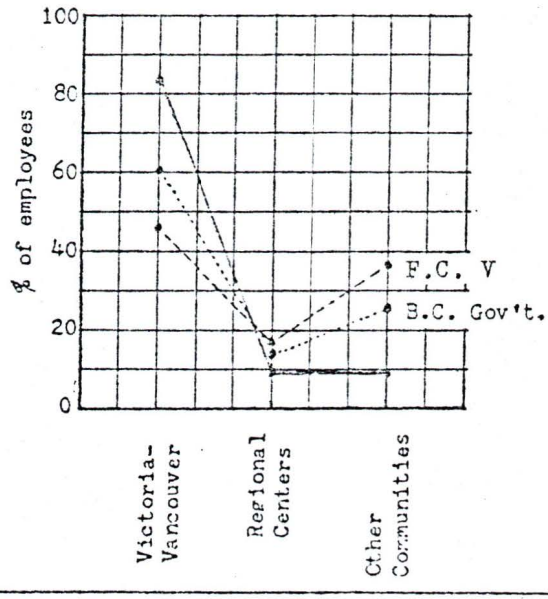
Cubic:

outside Victoria . . . 1.00

outside Vic-Vanc. 06

linear regresion 05

Dispersion Graph



Notes:

Functional category V

Department Transport and Communication

Branch Weigh Scale Branch

Dispersion/Decentralization Matrix

	Victoria		Lower Mainland		Regional Centers		Other Communities	
Band E								
Band D								
Band C	1	9 27						
Band B	1	4 9	1	4 9	2	8 16	2	8 16
Band A	3	3 3	19	19 19	21	21 21	83	83 83
Band O	1		1					
Totals	6	16 23	21	23 27	23	29 37	85	91 99

Indices of Dispersion

outside Victoria	.96
outside Vic-Vanc.	.80
linear regresion	.72

Indices of Spatial Decentralization

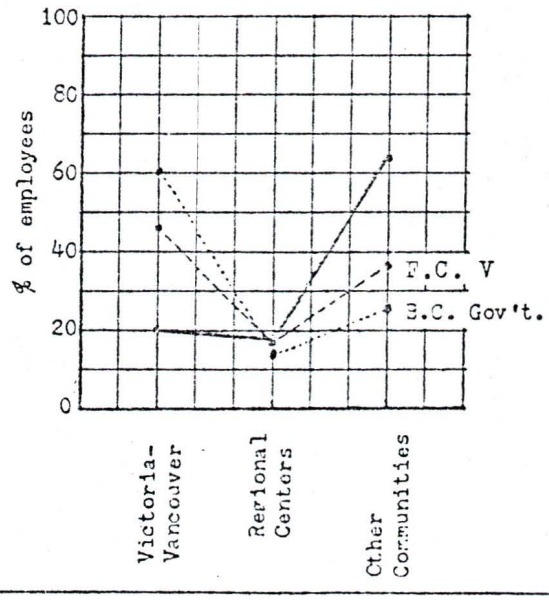
Geometric:

outside Victoria	.90
outside Vic-Vanc.	.75
linear regresion	.69

Cubic:

outside Victoria	.81
outside Vic-Vanc.	.68
linear regresion	.58

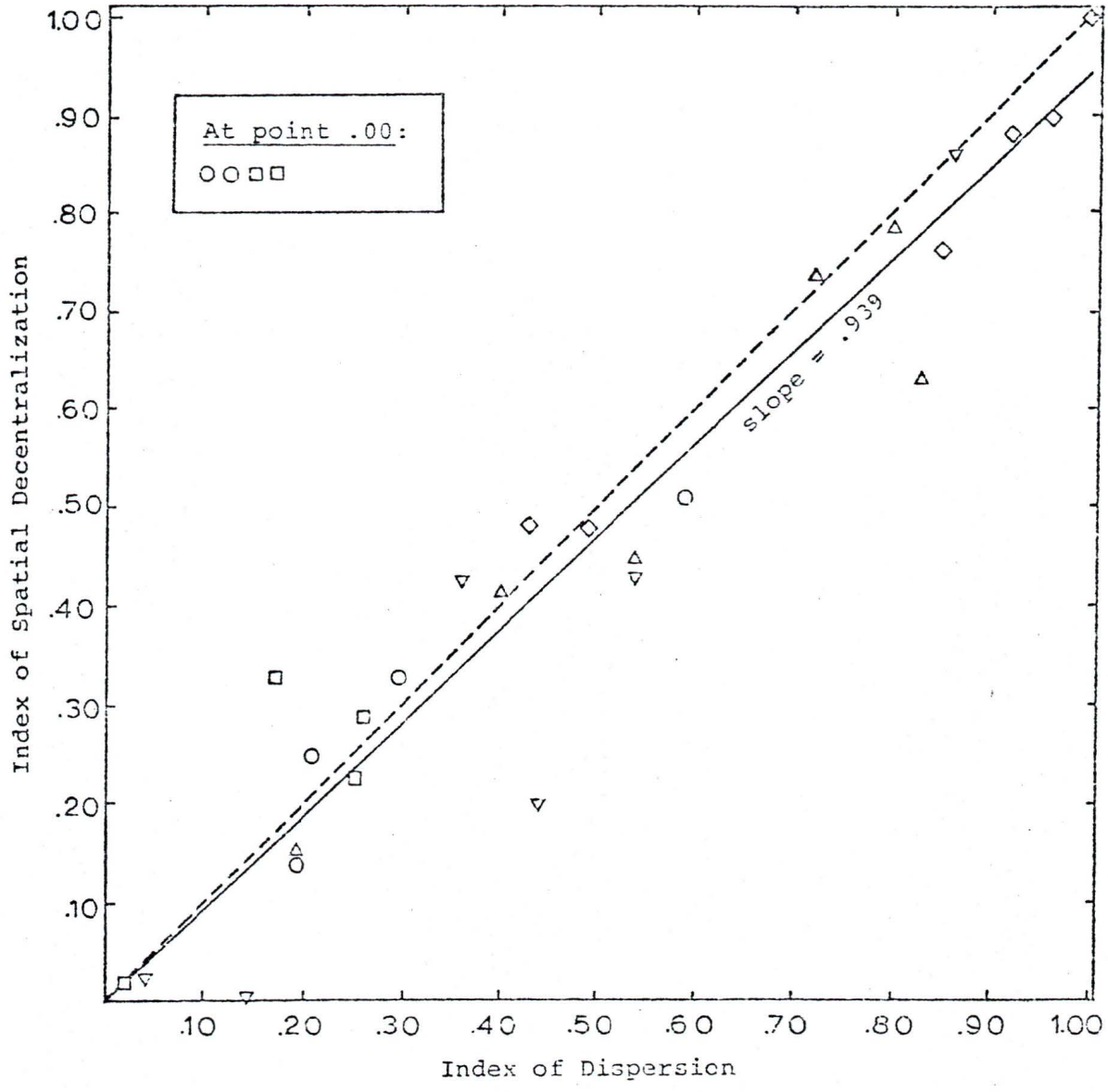
Dispersion Graph



Notes:

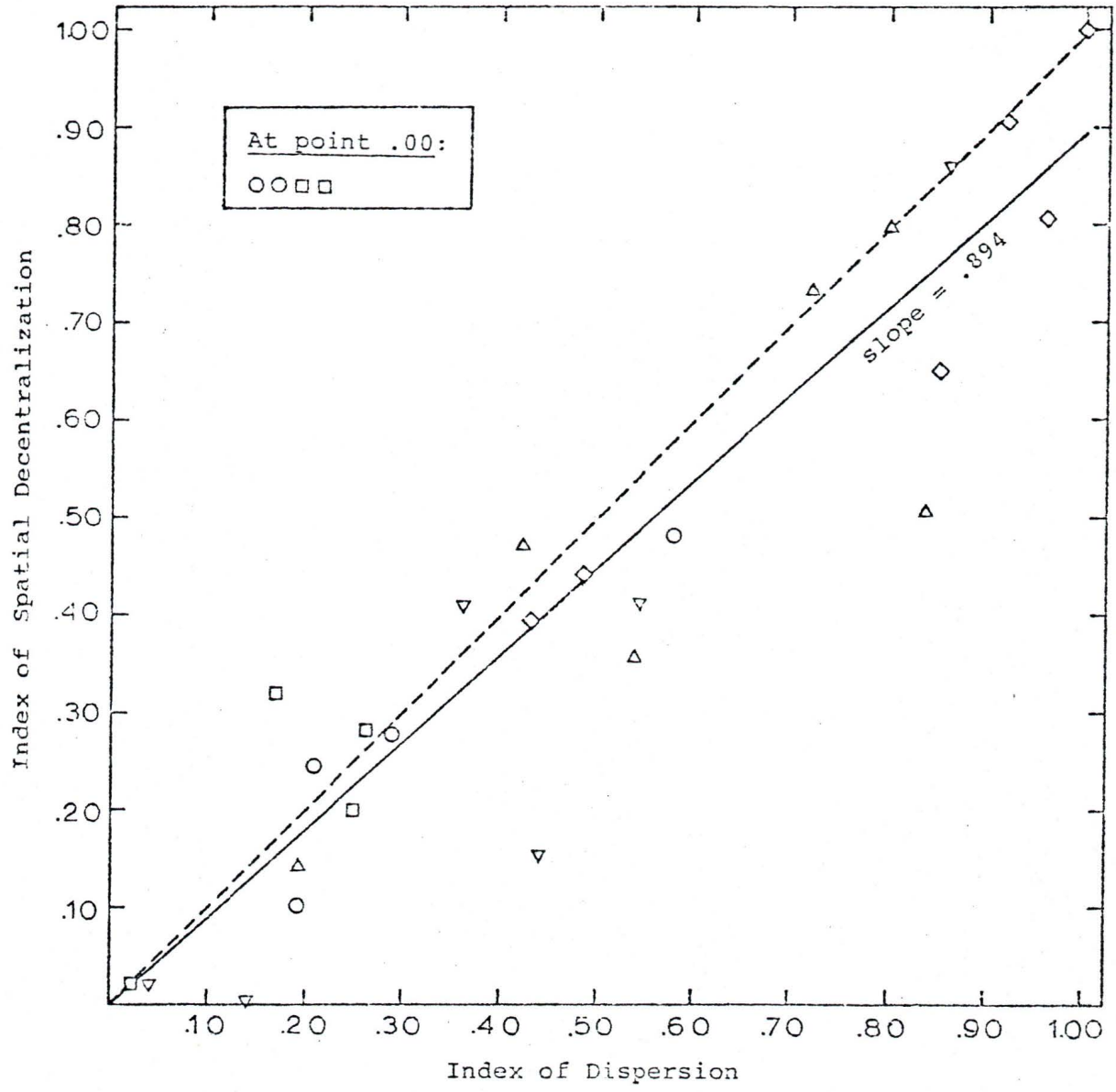
APPENDIX C

ITEM C-1 Dispersion/spatial decentralization graph using proportion outside Victoria method and geometric band values.



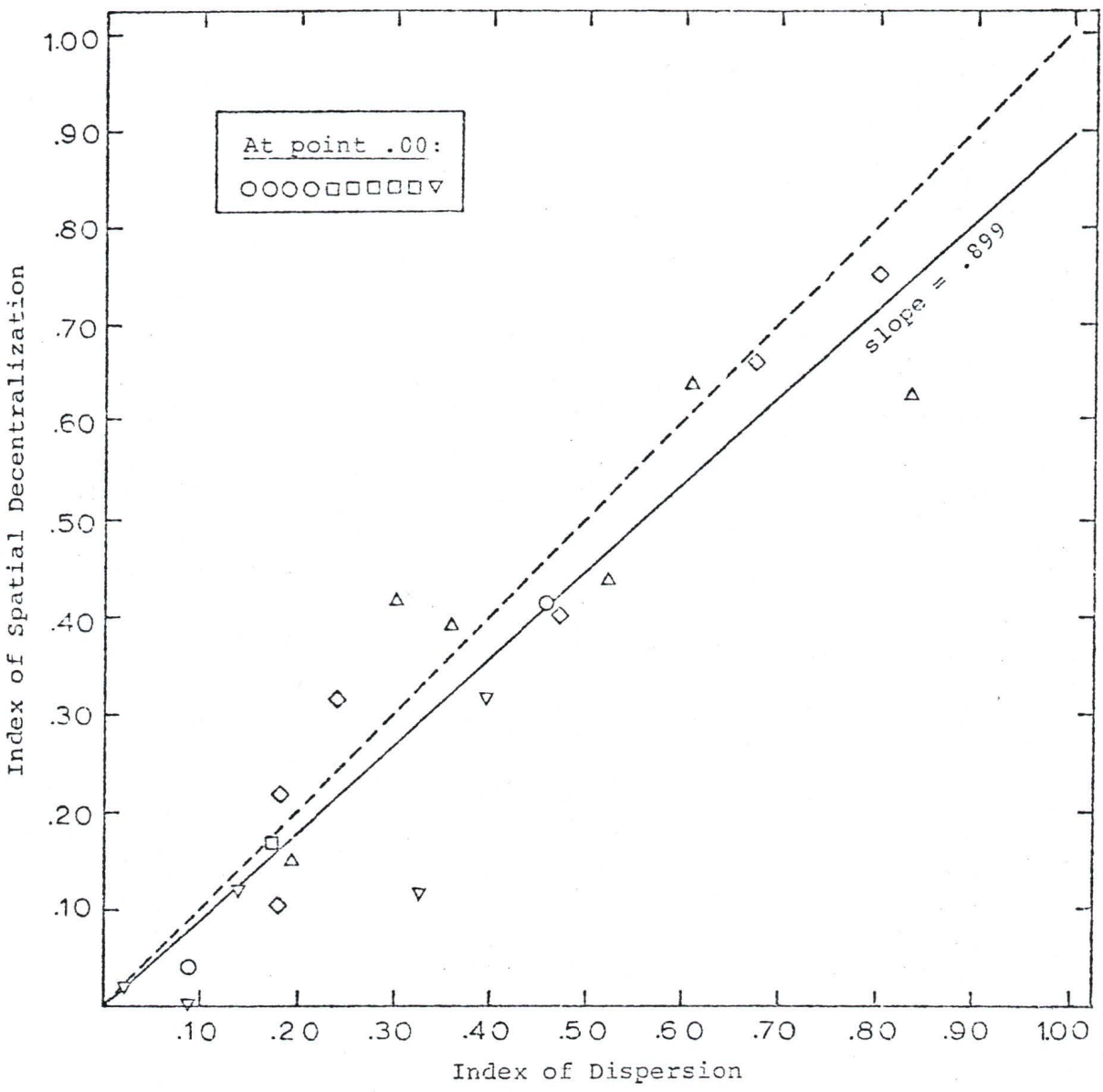
○ = Functional category I
□ = Functional category II
△ = Functional category III
▽ = Functional category IV
◇ = Functional category V

Item C-2 Dispersion/spatial decentralization graph using proportion outside Victoria method and cubic band values.



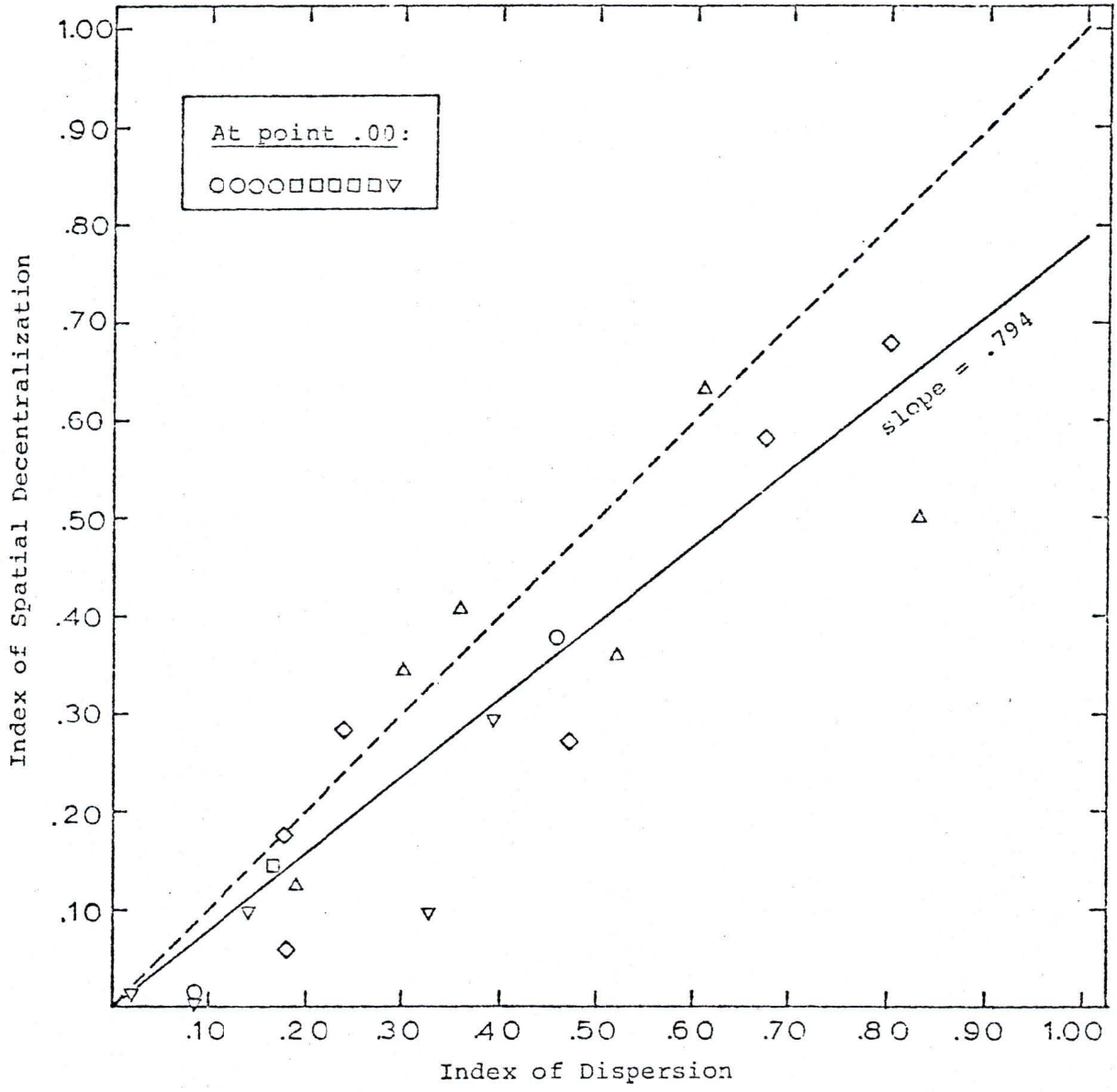
○ = Functional category I
□ = Functional category II
△ = Functional category III
▽ = Functional category IV
◇ = Functional category V

Item C-3 Dispersion/spatial decentralization graph using proportion outside Victoria-Vancouver method and geometric band values.



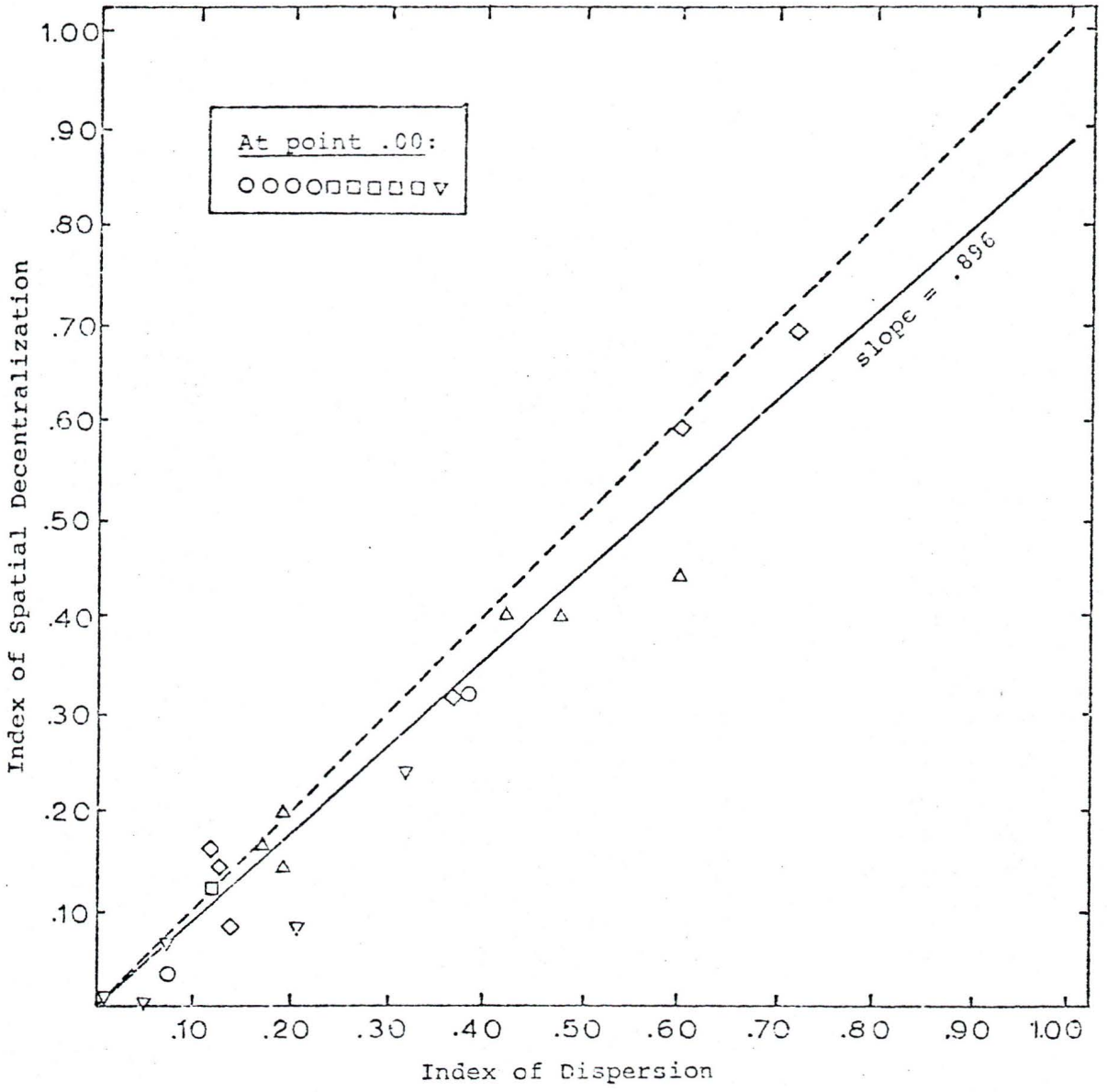
○ = Functional category I
□ = Functional category II
△ = Functional category III
▽ = Functional category IV
◇ = Functional category V

Item C-4 Dispersion/spatial decentralization graph using proportion outside Victoria-Vancouver method and cubic band values.



○ = Functional category I
□ = Functional category II
△ = Functional category III
▽ = Functional category IV
◇ = Functional category V

Item C-5 Dispersion/spatial decentralization graph using linear regression method and geometric band values.



O = Functional category I
□ = Functional category II
△ = Functional category III
▽ = Functional category IV
◇ = Functional category V

ITEM C-6

1976 POPULATION; BY CENSUS AGGLOMERATION DISTRICTS

Victoria (Cap. Reg. Dist.)		218,250
Vancouver (GVRD)		1,166,348
Regional Centre		219,766
Kamloops	58,311	
Kelowna	51,955	
Nanaimo	40,336	
Nelson	9,235	
Prince George	59,929	
Other		862,244
Total B.C.		2,466,608

SOURCE: Canada, Statistics Canada, Census: 1976: Population by Census Divisons and Subdivisions, Publication No. 92-805, June 1977.

ITEM C-7: INDICES OF DISPERSION AND SPATIAL DECENTRALIZATION

Branch	Index of Dispersion (L.R.)	Index of Spatial Decentralization (Cubic; L.R.)	Functional Category Averages	
			Index of Dispersion	Index of Spatial Decentralization
1	.00	.00		
2	.00	.00		
3	.38	.28	--	.08	.05
4	.07	.01		
5	.00	.00		
6	.00	.00		
7	.00	.00		
8	.00	.00		
9	.00	.00	—	.02	.02
10	.00	.00		
11	.12	.11		
12	.00	.00		
13	.48	.33		
14	.17	.19		
15	.19	.21	—	.34	.27
16	.42	.44		
17	.60	.34		
18	.19	.13		
19	.05	.00		
20	.00	.00		
21	.01	.01	—	.11	.06
22	.07	.05		
23	.21	.06		
24	.32	.23		
25	.60	.53		
26	.13	.11		
27	.12	.15	—	.35	.27
28	.37	.20		
29	.14	.05		
30	.72	.58		

APPENDIX D

CORRESPONDENCE FROM JEAN CHRETIEN TO AUTHOR; DECEMBER 7, 1977

DEC - 7 1977

Mr. William Huot,
Department of Geography,
University of Victoria,
P.O. Box 1700,
Victoria, B.C.
V8W 2Y2

Dear Mr. Huot:

I have noted from your letter of October 12 that you are doing research into the spacial dispersion of the B.C. Provincial Public Service and that you would like to have the benefit of any technical studies which deal with either the identification of units for relocation or with the likely economic benefits for the receiving communities.

The federal government has opted to keep decentralization within manageable dimensions by limiting the program to the relocation of easily separable units. Generally these are self-sufficient groups having clearly defined service or operational functions and are not directly involved in the process of governing the country.

Equally, site selection has been based upon the already established developmental priorities of DREE and MSUA with individual choices taking into account the ability of each site to meet the operational needs of the units to be relocated. Where there were a number of operationally satisfactory options the current economic conditions in each area were considered in arriving at final decisions. You may find it useful to contact the Victoria office of DREE who should be able to provide some background on the determination of their priorities.

While these approaches have avoided the need for the types of studies which you have postulated, they have also limited the relocation potential for the Federal Public Service and may require future broadening. Given the similarity of our two problems, we would appreciate the opportunity, when you have completed your research, of commenting on its findings.

...2

I am attaching a number of papers, including a copy of my statement of October 3, which outline the goals of the program and some of the factors which were considered in the selection of units and the timing of planned moves. Lists of the specific cases are included.

I hope that these few comments, together with the attachments, will be helpful in your analysis of the spacial dispersion of the Public Service in British Columbia.

Yours sincerely,

[redacted]

Jean Chrétien

VITA

Surname: HUOT Given Names: WILLIAM JOHN, Jr.

Place of Brith: ST. PAUL, MINNESOTA, U.S.A.

Date of Birth: 14 MAY 1948

Educational Institutions Attended,
with Dates of Entering and Leaving:

MARQUETTE UNIVERSITY, MILWAUKEE, WISC.	1966 to 1967
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINN.	1968 to 1970
UNIVERSITY OF VICTORIA, B.C.	1974 to 1978
	____ to ____

Degrees, Diplomas, Etc., Awarded,
with Dates and Names of Institutions:

B.S.B.	1970	University of Minnesota, Minneapolis

Honors and Awards:

B.C. Institute for Economic Policy Analysis Fellowships,
1975/76, 1976/77

Publications:

With W. Graham Argyle, "Prince George '77," British Columbia Ministry of Education, April 1977.

With W. Graham Argyle and John H. Dalgleish, "Facilities Study '77," School District #61 (Greater Victoria), October 1977.

"Declining Enrolment." A presentation to the 14th Annual Conference of School Plant Officials Association, Victoria, B.C., June 7-9, 1978.

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Title of Thesis

DISPERSION AND SPATIAL DECENTRALIZATION IN THE BRITISH COLUMBIA PUBLIC SERVICE.

Author [redacted]
Signature

WILLIAM J. HUOT, JR.
Name

27 June 1978
Date