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No.

Single Industry Communities

Regional Expansion
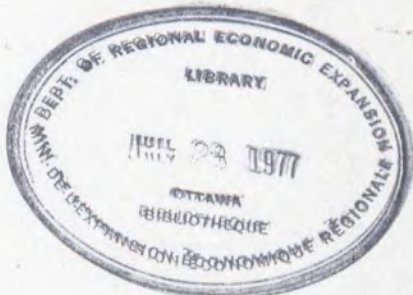Economic Économique
Expansion Régionale

"Occasional Papers"

Single Industry
Communities

OCCASIONAL PAPERS

From time to time, the Department of Regional Economic Expansion (DREE) publishes analytical research reports which have been undertaken in the course of the department's ongoing examination of socio-economic circumstances across the country.

These "occasional papers" will be of general interest to various groups such as the academic, government and business communities — indeed to anyone interested in the regional development process at large.

In presenting these research papers, it must be noted that, while prepared on behalf of the department, either through independent research or by staff resources, the reports are not intended to constitute or reflect the policies, objectives or opinions of the Government of Canada. Rather, they are meant to contribute to the level of general knowledge and discussion of the particular subject area which they undertake to examine.

FOREWORD

Single-industry communities have been a long-standing and recurrently acute concern of all levels of government. In late May 1974, an analytical team, drawn from several federal departments, began to investigate various aspects of the problem of single-industry communities. This study represents a major part of the team's efforts. Although the study is substantive, it represents only part of the research needed.

This report does not in any way constitute a statement of federal policy. Rather it identifies and describes those communities in Canada that are economically dependent on a single activity. It is hoped that this study will result in a greater understanding of the phenomenon of single-industry communities; and will provide a framework whose informational features are probably essential to coordination of attempts to deal with problems of economic and social adjustment.

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SUMMARY

NATURE AND MAGNITUDE OF THE PROBLEM OF SINGLE-INDUSTRY COMMUNITIES

Single-industry communities have been a long-standing concern of the federal government. This study describes the various dimensions of the phenomenon of single-industry communities and outlines methods of dealing with potential problems.

The foundation of the single-industry-community phenomenon, quite obviously, lies in the singular nature of the community's economic base. Most such communities depend upon the economic viability of the dominant employer(s), whose fortune is often determined by forces beyond the control of the community. However, in formulating policies to tackle the difficulties faced by single-industry communities, decision-makers must focus on the social problems associated with the rapid decline of the local industry.

The study shows quite clearly that single-industry communities are not all alike. Hence, their needs cannot be met by a general, prepackaged combination of policies.

A significant portion of those who live outside the major urban areas of Canada are located in these communities. A total of 811 single-industry communities were identified and their inhabitants make up 12.7 per cent of the non-metropolitan population.

Many of these communities are, as is normally envisioned, small, remote towns: 424 have populations under 1 000, and 302 have populations in the 1 000 − 4 999 range. Three hundred and fifteen communities are a considerable distance from major population centres and transportation routes. On the other hand, nine communities have populations of more than 30 000 and amenities similar to those in urban areas of the same size.

Regional differences are apparent. In the Atlantic provinces some 36 per cent of non-metropolitan population lives

in single-industry communities while the comparable figure for Alberta and British Columbia is 27 per cent. At the other end of the scale, only about six per cent of non-metropolitan towns in Manitoba and Saskatchewan are classified as single-industry based, but these comprise 15 per cent of the population outside the major urban areas.

The regional figures obscure, to a certain extent, the provincial values. For example, British Columbia, with 99 single-industry communities representing about 50 per cent of its non-metropolitan communities, has the highest ratio of single-industry communities to total communities. Newfoundland, however, has the largest proportion of its non-metropolitan population (over 25 per cent) living in single-industry communities. At the lower end of the range, Saskatchewan has about 10 per cent of its non-metropolitan population in such communities.

The spatial dispersion of single-industry communities is striking. In many provinces, and especially in the Atlantic provinces, single-industry communities tend to occur in clusters (e.g. in Prince Edward Island) or in strip patterns (e.g. along Newfoundland's north and east coasts). When these communities are mapped according to their economic base (Figs. 1 to 15) and size, the spatial dimensions of the phenomenon become all the more striking. One notices immediately the regional dominance of smaller communities and the provincial dominance of certain economic activities (e.g. wood-based industry in British Columbia and fishing and fish-processing in Newfoundland). This pattern is hardly surprising as ready access to natural resources and/or cheap sources of natural energy often dictated the location of a community.

These communities are not, by definition, in economic distress, although they are more vulnerable than those with a well-established and varied economic base. Many single-industry communities are, at present, extremely viable. Nonetheless, at least the smaller and more remote of these communities display certain social manifestations which become magnified in periods of economic difficulties. The predominance of the local industry or activity means that the company's or industry's problems become the community's problem. These factors often produce a fish-bowl feeling among residents. A lack of access to a broad variety of commercial and recreational facilities and a sense of isolation are two of the residents' most frequent complaints.

Geographic isolation has a particularly heavy impact upon adolescents. There are few opportunities for employment outside the dominant industry. Education is often limited to secondary education, as post-secondary institutions are not within commuting distance. Similarly, the occupational organization of

the company can create problems. Vertical mobility is often limited by union segmentation and strict seniority practices. Additionally, medical and dental services are often inadequate if they exist at all.

These factors become exaggerated in the event that the local industry ceases operations. The immediate effect of such a closure is, of course, substantial unemployment and a loss of income in the dominant industry and in the local businesses dependent upon it. Moreover, while the effects of a local shutdown are manifested most strongly in economic and social conditions, the most fundamental community problems are related to a lack of labour mobility among community residents. Existing labour skills are often not required elsewhere or, if so, are often required only at lower wage rates.

The social and psychological costs of involuntary unemployment are severe. Some residents leave the community, often at social and economic loss to the individual and to society. Those who remain in the community are faced with major problems of adjustment, not only to lowered incomes but also to lower levels of health, educational and other services and amenities.

CRITERIA FOR THE SELECTION OF SINGLE-INDUSTRY COMMUNITIES AND THE ASSEMBLAGE OF THE REQUISITE DATA BASE

The conceptual definition of a single-industry community adopted in this report is relatively straightforward. A single-industry community is one in which there exists a single dominant economic activity (a single employer or group of employers in a single economic activity/industry) and which is not within commuting distance of another area or areas offering alternative employment opportunities.

Certain types of communities were excluded because of their unique nature, and hence the unique policies required to deal with their problems. Census Metropolitan Areas (CMAs), agriculture-based communities (except for agricultural service centres), Indian Reserves, and communities north of the 60th parallel were all excluded.

The actual process of identifying single-industry communities required the assemblage of three nation-wide data bases and reference to various partial (e.g. province-wide) data bases. A variety of operational definitions were adopted, depending upon the data base used. Lists were then cross-tabulated to produce a master list of communities.

A master list of single-industry communities was produced via cross-tabulations of the various lists relating to different operational definitions. Extensive data collected on each community were fed into a computer for analysis. This easily-accessible data base was designed to be updated periodically in conjunction with the master list and the requisite analysis of these communities.

THE DESCRIPTION AND CLASSIFICATION OF CANADIAN SINGLE-INDUSTRY COMMUNITIES

The purpose of the analysis was to produce a multivariate description and classification of single-industry communities, i.e. to identify the primary social and economic dimensions that distinguish one community from another and to ascertain whether these communities fall into well-defined groups to which similar policies could be applied.

The results of this analysis suggest two major conclusions:
1. The unusually large number of factors identified as being significant for these communities indicates that their social and economic characteristics are different.
2. Even in the same province, single-industry communities engaged in the same economic activity are not necessarily alike. Communities with similar economic bases vary widely over variables, such as age and family structure, housing stocks, and home ownership. Accordingly, it is not feasible to assemble a single set of policies to be applied to such communities if and when they encounter difficulties. Rather, each one must be considered as a unique case.

Attempts to classify communities in British Columbia confirmed these conclusions. Single-industry communities in British Columbia differed in nature and extent from those else-

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where in Canada and from each other, even when they had similar basic economic activities. Hence, economic indicators are useful in defining which communities are dependent upon a single industry, but tell little about the differences in their makeup and problems and thus the nature of policies that can help them. A variety of social indicators, particularly demographic, housing and infrastructure variables, are far more significant in this respect.

A FRAMEWORK FOR ANALYSIS OF
SINGLE-INDUSTRY COMMUNITIES

A framework for analysis provides broad guidelines for governments and the private sector in dealing with distressed single-industry communities.

The framework is presented in terms of its major elements, the results of which can be visualized as a matrix of indicators set in four "concern" categories, with a set of indicators corresponding to each policy alternative. The first three categories (personal, economic and social indicators) measure the effectiveness of each policy alternative in realizing governmental objectives; while the fourth category (budgetary indicators) provides information on a major governmental constraint. The process of arraying relevant information in this form will help to clarify the trade-offs that must be made to attain the objectives of each alternative policy response envisaged for a given community at a given time.

The first part of the analysis framework, Private Accounts, describes a system for measuring, on an individual (family) basis, the private economic (dollar) costs or benefits of each alternative governmental action, including the non-intervention ("do-nothing") alternative. The purpose is to devise indicators of personal well-being, from a purely financial perspective, under each of the proposed alternatives. Accordingly, the Private Accounts measure income losses from unemployment or alternative employment as well as losses in wealth. In the assessment of policy alternatives as applied to a given community, the above measures can be summed to provide an estimate of the total impact from a purely financial perspective. They can also be used individually to design the policy package best suited

to the specific needs of a community. In addition, measures of private cost can provide a number of other useful indicators, including indicators of the distributional effects of various intervention alternatives (e.g. the number of persons unemployed as a result of closure and the number of families whose incomes fall below the poverty line).

The second section of the analysis framework, Economic Accounts, outlines a methodology for assessing the purely eonomic implications of the various alternatives to society as a whole. The economic costs associated with each policy alternative are assessed to estimate the net present value of that alternative, as opposed to the non-intervention alternative. Accordingly, the implications of non-intervention are first mapped out in terms of relocation of residents, then translated into social infrastructure, private capital, and manpower requirements (economic costs); and labour production estimates (economic benefits). The economic costs and benefits of each other policy alternative may then be measured against the costs and benefits that would have been incurred in the "do-nothing" alternative.

The third section of the framework, the more purely social implications of the policy alternatives, reflects a multitude of social concerns that cannot generally be quantified and aggregated. Precisely because a monetary cost cannot be assigned to these indicators, they have not been spelled out in detail in the framework. Nevertheless, social indicators must be taken into account when alternatives are being considered.

The fourth part of the framework, Budgetary Accounts, provides a framework for quantifying the federal budgetary requirements for each alternative. This section of the framework looks only at alternative implications for the federal budget but it can be expanded to include implications for provincial and municipal budgets.

1. THE PROBLEM

The prospects of most single-industry communities are contingent on the economic viability of the dominant employer(s). This is equally true of a very large community (e.g. Oshawa, Ontario) or of a small and geographically-isolated company town. The very fact that a significant proportion of a community's income and employment comes from a single employer (or group of employers within a single industry) indicates immediate and serious problems within the community should that source disappear.

The narrow economic base and the consequent predominance of the industry in community life magnify difficulties experienced by the industry as a whole. In many cases, the local employer's viability is determined by forces beyond the control of the local plant of the parent enterprise, where one exists, and of the community. Rapid shifts in market structure or trading patterns can make local operations unprofitable; technological change may eliminate the competitive position of the industry internationally. Changes in Canadian government policies or those of foreign governments (witness Domestic International Sales Corporation) may lead to shutdowns, despite the continued marketability of local products. Extraction and resource-based industries operate under even more basic constraints imposed by the steady depletion of resources. Other volatile factors include the ability to substitute other goods, markets facing firms which use local products, the market share held by each producer, and the degree of inter-firm competition.

The economic problems appear most obvious. However, a review of the existing (qualitative) literature and our analysis in Section 3 suggest that it is the social problems associated with the rapid decline or demise of the local industry (the major economic base of the community) which make single-industry communities in Canada a salient problem for policy planning.

MAGNITUDE OF THE PROBLEM

Although the magnitude of the problem of single-industry communities cannot be readily quantified in human terms, certain statistics serve to indicate the extent to which Canadian communities depend upon a single economic base. The number of communities and people affected varies from region to region across the country; areas such as the Atlantic provinces and British Columbia are much more severely affected than Ontario or Quebec.

As Table 1 shows, the total of 811 single-industry communities in Canada identified in this study represents 12.7 per cent of the communities not considered to be census metropolitan areas (CMAs). In these towns, there are 2 444 143 people, representing 25.5 per cent of the non-CMA population.[1] Thus, it is immediately apparent that a significant proportion of the population living outside the nation's major urban areas is located in communities dependent for their existence on the continuing viability of a dominant economic activity. In certain regions this is even more apparent. In the Atlantic provinces, 36.0 per cent of the non-CMA population lives in single-industry communities while the figure for Alberta and British Columbia is 27.0 per cent. At the other end of the scale, only 6.2 per cent of the non-CMA towns in Manitoba and Saskatchewan are classified as single-industry based, but these comprise 15.1 per cent of the population outside the major urban areas.[2]

These regional figures obscure, to a certain extent, the provincial values. An examination of Table 1 indicates that British Columbia, with its single-industry communities representing 50.3 per cent of all non-CMA communities, has the highest ratio of single-industry communities to the total. Newfoundland, however, has the largest proportion of its non-CMA population (52.7 per cent) living in single-industry towns. At the lower end of the range, Saskatchewan, with only 10.4 per cent of its non-CMA population in such communities, is much less severely affected.

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[1] This total includes only census agglomerations, incorporated municipalities, or census subdivisions where the entire census subdivision has been identified as a single-industry community. Population figures also include the population of single-industry "communities"/settlements which are part of a non-single-industry census subdivision. (See footnotes, Table 1, for a more detailed explanation of the construction of these figures.)

[2] Note, however, that agriculture-based communities have been excluded from consideration as single-industry communities. Inclusion of such communities would substantially raise the totals for the prairie provinces.

These statistics illustrate the varying importance of single-industry communities in the different regions of Canada. It is equally important, however, to note the concentration of communities with populations under 5 000. Of 811 communities, 424 have populations under 1 000 and 302 fall into the 1 000 – 4 999 size range. Of additional interest is the fact that nine communities have populations of more than 30 000. These do not fit the preconceived notion of single-industry communities as small, remote towns.

Many such communities are indeed small and remote, 315 have a remoteness index of two or less, indicating that they are a considerable distance from main population centres (Table 1). Figures 1 to 15 show how these communities are dispersed in each province, particularly in the Atlantic provinces. It is also aparent from these maps that single-industry communities are often found in clusters, e.g. in Prince Edward Island (Fig. 3) or in strip patterns, e.g. along the north and east coasts of Newfoundland (Fig. 1).

The maps also show the single-industry communities by industrial base and size.[3] There are 10 industrial classifications as follows: manufacturing; refining and mining-metal; refining and mining-non-metal; public administration; wood-based industries (pulp and paper, logging and sawmills); food processing[4]; fishing; railroads, water transportation, hydro and other utilities; agricultural service centres; and construction, tourism and other services. The dominance of certain activities in some provinces emerges clearly (Figs. 1 to 15, Table 2); e.g. wood-based activities dominate in British Columbia (Fig. 15) and fishing and fish processing in Newfoundland (Fig. 1).

GENERAL CHARACTERISTICS

Despite the marked variation in size, location, and function of single-industry communities, their characteristics are frequently consequences of the decision to locate a given industry in a specific place. Many of these communities are resource based and are located close to their resource, e.g. forests, mineral

[3]Because of the nature and number of single-industry communities in Newfoundland, Nova Scotia, Quebec, Ontario and British Columbia, two maps are provided for each province.
[4]Food processing includes fish processing.

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TABLE 1

NUMBER OF SINGLE-INDUSTRY COMMUNITIES IN PROVINCES AND REGIONS, BY POPULATION SIZE, 1971

| | Single-Industry Communities[1] | | | | | | | Population[2] | |
| | Number | | | | | | | | |
Province Region	With Pop. < 1 000	With Pop. 1 000-4 999	With Pop. 5 000-29 999	With Pop. 30 000 +	Total	As a % of Non-CMAs	With Isolation Index ≤ 2[3]	Total[1]	As a % of Total Non-CMA Pop.
Newfoundland									
Census S-I. Comm.	52	25	7	0	84	28.3			
Sub-area S-I. Comm.	22	15	0	0	37				
Total	74	40	7	0	121		74	205 544	52.7
New Brunswick									
Census S-I. Comm.	19	14	5	0	38	16.0			
Sub-area S-I. Comm.	20	9	0	0	29				
Total	39	23	5	0	67		48	144 334	27.3
Prince Edward Island									
Census S-I. Comm.	9	1	1	0	11	11.5			
Sub-area S-I. Comm.	13	1	0	0	14				
Total	22	2	1	0	25		25	24 870	22.3
Nova Scotia									
Census S-I. Comm.	0	8	1	2	11	14.3			
Sub-area S-I. Comm.	18	10	3	0	31				
Total	18	18	4	2	42		8	199 318	35.2
Atlantic Provinces									
Census S-I. Comm.	80	46	14	2	143	20.3			
Sub-area S-I. Comm.	73	35	3	0	112				
Total	153	83	17	2	255		155	574 066	36.0
Quebec									
Census S-I. Comm.	71	54	19	0	144	10.4			
Sub-area S-I. Comm.	64	11	1	0	76				
Total	135	65	20	0	220		48	488 845	19.4

Ontario									
Census S-I. Comm.	19	41	16	5	81	10.8			
Sub-area S-I. Comm.	22	11	1	0	34				
Total	41	52	17	5	115		29	772 464	27.8
Manitoba									
Census S-I. Comm.	6	15	6	0	27	12.4	9		
Sub-area S-I. Comm.	4	1	0	0	5				
Total	10	16	6	0	32			98 414	22.0
Saskatchewan									
Census S-I. Comm.	16	18	2	0	36	4.5			
Sub-area S-I. Comm.	2	1	0	0	3				
Total	18	19	2	0	39		22	68 308	10.4
Manitoba-Saskatchewan									
Census S-I. Comm.	22	33	8	0	63	6.2			
Sub-area S-I. Comm.	6	2	0	0	8				
Total	28	35	8	0	71		31	166 722	15.1
Alberta									
Census S-I. Comm.	18	24	3	0	45	13.2			
Sub-area S-I. Comm.	5	1	0	0	6				
Total	23	25	3	0	51		18	101 665	13.9
British Columbia									
Census S-I. Comm.	25	39	11	2	77	50.3			
Sub-area S-I. Comm.	19	3	0	0	22				
Total	44	42	11	2	99		34	340 381	37.5
Alberta-British Columbia									
Census S-I. Comm.	43	63	14	2	122	24.7			
Sub-area S-I. Comm.	24	4	0	0	28				
Total	67	67	14	2	150		52	442 046	27.0
Total									
Census S-I. Comm.	235	239	71	9	554	12.7			
Sub-area S-I. Comm.	189	63	5	0	257				
Total	424	302	76	9	811		315	2 444 143	25.3

[1]Communities constitute those enumerated using the standard census definition of an incorporated municipality or a census subdivision. When a single settlement in a census subdivision was identified as a single-industry community but the rest of the subdivision failed to share that unique economic base, the census subdivision was not counted as a single-industry community.

[2]Calculations include the population of a census agglomeration, incorporated municipality or census subdivision identified as a single-industry community. When only one or two of the communities within a census subdivision were identified as a single-industry community, the population of the listed communities only, rather than that of the entire census subdivision, was included.

[3]An isolation index of 1 or 2 indicates that the community is situated 100 miles or more from a community of 25 000 · but is possibly within 30 miles of a major highway or railway.

TABLE 2

NUMBER OF SINGLE-INDUSTRY COMMUNITIES IN PROVINCES AND REGIONS, BY INDUSTRIAL BASE, 1971

Province/Region	No. of Single-Industry Communities, by Industrial Base										
	Manuf.	Metal Mines & Re-fine.	Public Admin.	Non-Metal Mines & Re-fine.	Wood-based	Food Proc.	Fish. & Fish Proc.	Util. & Transp.	Agric. Serv. Centres	Const., Tourism, Misc.	Total
Newfoundland	2	6	5	5	19	0	78	2	0	4	121
New Brunswick	1	2	8	1	33	4	17	1	0	0	67
Prince Edward Island	0	0	1	0	0	14	8	1	0	1	25
Nova Scotia	5	1	3	5	10	1	18	0	0	0	42
Atlantic Provinces	8	9	17	11	62	18	121	4	0	5	255
Quebec	30	20	18	8	114	1	10	7	0	12	220
Ontario	10	28	7	3	42	8	0	8	0	9	115
Manitoba	1	8	7	1	4	1	0	3	0	7	32
Saskatchewan	0	4	6	14	2	1	0	2	0	10	39
Manitoba-Saskatchewan	1	12	13	15	6	2	0	5	0	17	71
Alberta	4	0	11	14	8	1	0	1	9	3	51
British Columbia	0	19	2	3	70	1	0	2	0	2	99
Alberta-British Columbia	4	19	13	17	78	2	0	3	9	5	150
Total	53	88	68	54	302	31	131	27	9	48	811
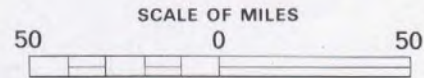
NEWFOUNDLAND

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

SCALE OF MILES

50   0   50

ISLAND OF NEWFOUNDLAND

SCALE OF MILES

50　0　50

LABRADOR

SINGLE-INDUSTRY COMMUNITIES
Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

PRINCE EDWARD ISLAND

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

SCALE OF MILES
0   10   20

NOVA SCOTIA

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1,000
Up to 30,000
Over 30,000

SCALE OF MILES

50   0   50

Cape St. Lawrence
Cape North
Aspy Bay
CAPE BRETON HIGHLANDS NAT PARK
Chéticamp
Ingonish
Margaree Harbour
Indian Brook
Inverness
Mabou
Baddeck
Port Hood
SYDNEY MINES
NEW WATERFORD
Dominion
GLACE BAY
NORTH SYDNEY
SYDNEY
CAPE BRETON
Reserve
Morien
Louisburg
Cape Breton
ISLAND
C. George
Judique
George Bay
Bras d'Or
St. Peters
L'Ardoise
Arichat
Boylston
Canso
Pugwash
AMHERST
River John
Antigonish
Oxford
Pictou
Trenton
Joggins
Maccan
Springhill
Westville
STELLARTON
NEW GLASGOW
Mulgrave
Pt. Hawkesbury
Guysborough
Londonderry
Tatamagouche
TRURO
C N
Parrsboro
Advocate Har.
Minas Basin
Stewiacke
Larry's River
Goldboro
Kingsport
Upper Musquodoboit
Goldenville
Musquodoboit
Iscomb
Margaretsville
Kentville
Windsor
Elmsdale
Meaghers Grant
Ecum Secum
Bridgetown
Middleton
Bedford
DARTMOUTH
Sheet Harbour
Digby
Annapolis Royal
Chester
East Chezzetcook
Tangier
Centreville
Bear River
HALIFAX
Plympton
Mahone Bay
Sambro
Weymouth
Lunenburg
Pennant Pt.
Freeport
Church Pt.
Prospect
Westport
Méteghan
L. Rossignol
Milton
Bridgewater
Port Maitland
Shelburne
Liverpool
YARMOUTH
Tusket
Clyde
Port Mouton
Wedgeport
Pubnico
Lockeport
Lower Woods Harbour
C. Sable

NOVA SCOTIA

SINGLE-INDUSTRY COMMUNITIES
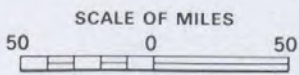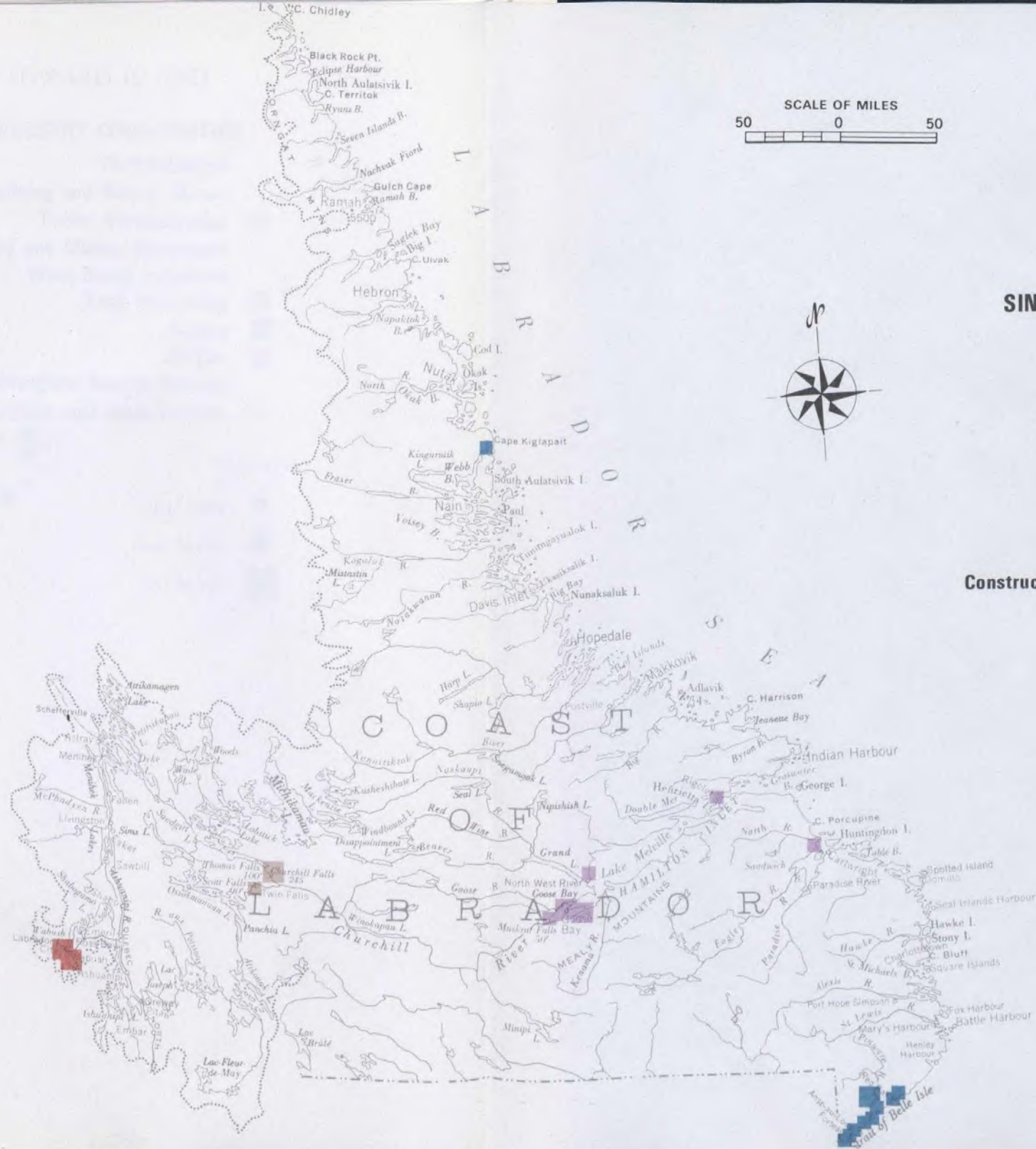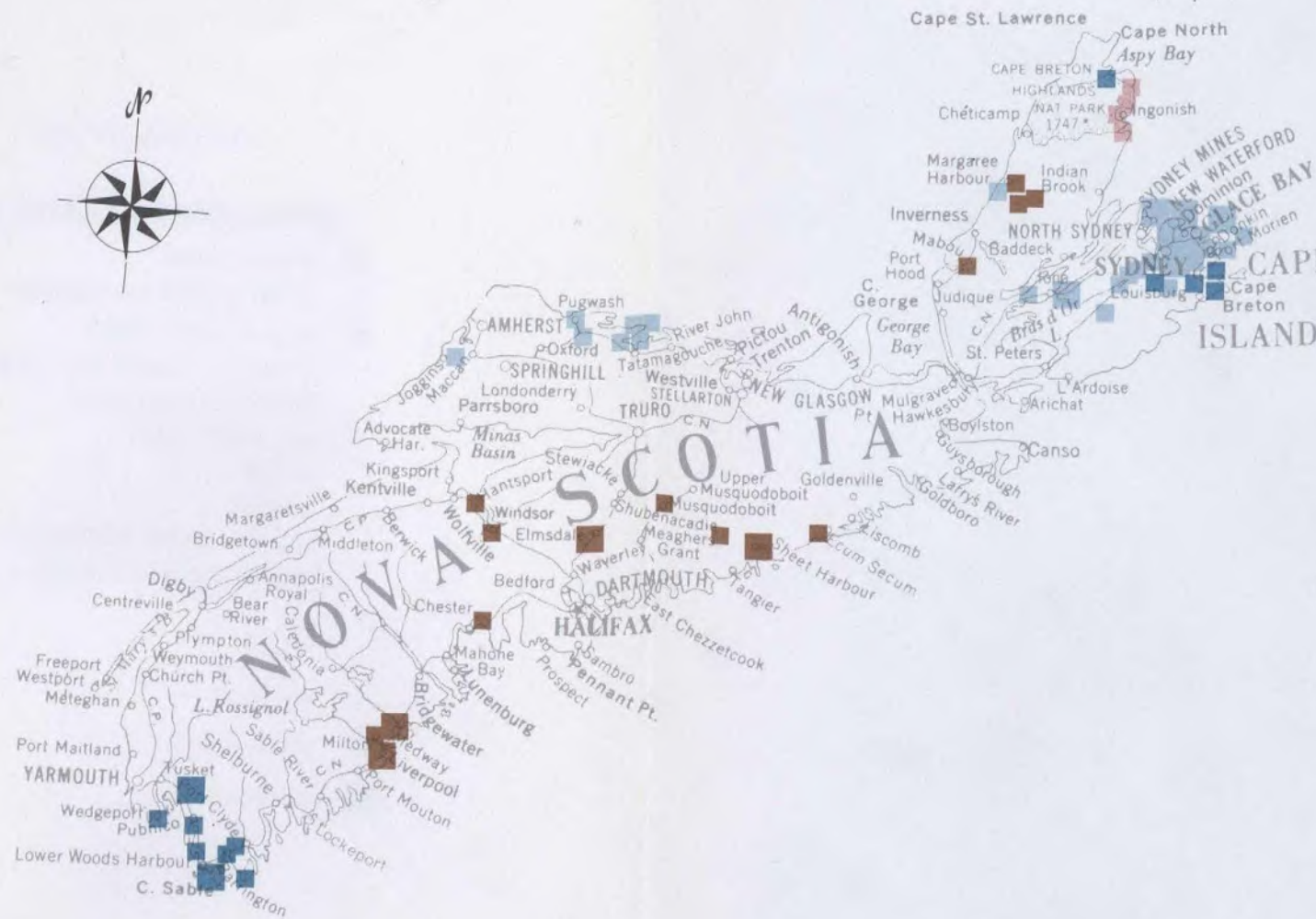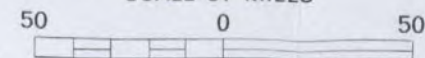
Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1,000
Up to 30,000
Over 30,000

SCALE OF MILES

50   0   50

Cape St. Lawrence
Cape North
Aspy Bay
CAPE BRETON HIGHLANDS NAT PARK
1747
Chéticamp
Ingonish
Margaree Harbour
Indian Brook
Inverness
Mabou
Port Hood
Baddeck
NORTH SYDNEY
SYDNEY MINES
NEW WATERFORD
Dominion
GLACE BAY
Donkin
Port Morien
SYDNEY
Louisburg
Cape Breton
CAPE BRETON ISLAND
C. George
Judique
George Bay
Iona
Bras d'Or L.
St. Peters
L'Ardoise
Arichat
Pugwash
AMHERST
River John
Antigonish
Oxford
Tatamagouche
Pictou
Trenton
SPRINGHILL
Westville
Joggins
Maccan
Londonderry
STELLARTON
NEW GLASGOW
Mulgrave
Hawkesbury
Boylston
Parrsboro
TRURO
C.N.
Canso
Advocate Har.
Minas Basin
Stewiacke
Guysborough
Larry's River
Goldboro
Kingsport
Hantsport
Upper Musquodoboit
Goldenville
Isaac's Harbour
Margaretsville
Kentville
Windsor
Musquodoboit
Liscomb
Middleton
Wolfville
Shubenacadie
Meaghers Grant
Ecum Secum
Bridgetown
Berwick
Elmsdale
Waverley
Sheet Harbour
Annapolis Royal
Bedford
DARTMOUTH
Tangier
East Chezzetcook
Digby
Bear River
Chester
HALIFAX
Centreville
Caledonia
Sambro
Pennant Pt.
Freeport
Plympton
Mahone Bay
Prospect
Westport
Weymouth
Church Pt.
Lunenburg
Méteghan
L. Rossignol
Bridgewater
Port Maitland
Milton
Medway
YARMOUTH
Shelburne
Liverpool
Fusket
Sable River
Port Mouton
Wedgeport
Port Clyde
C.N.
Pubnico
Lockeport
Lower Woods Harbour
Barrington
C. Sable

SCALE OF MILES

50   0   50

NEW BRUNSWICK

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
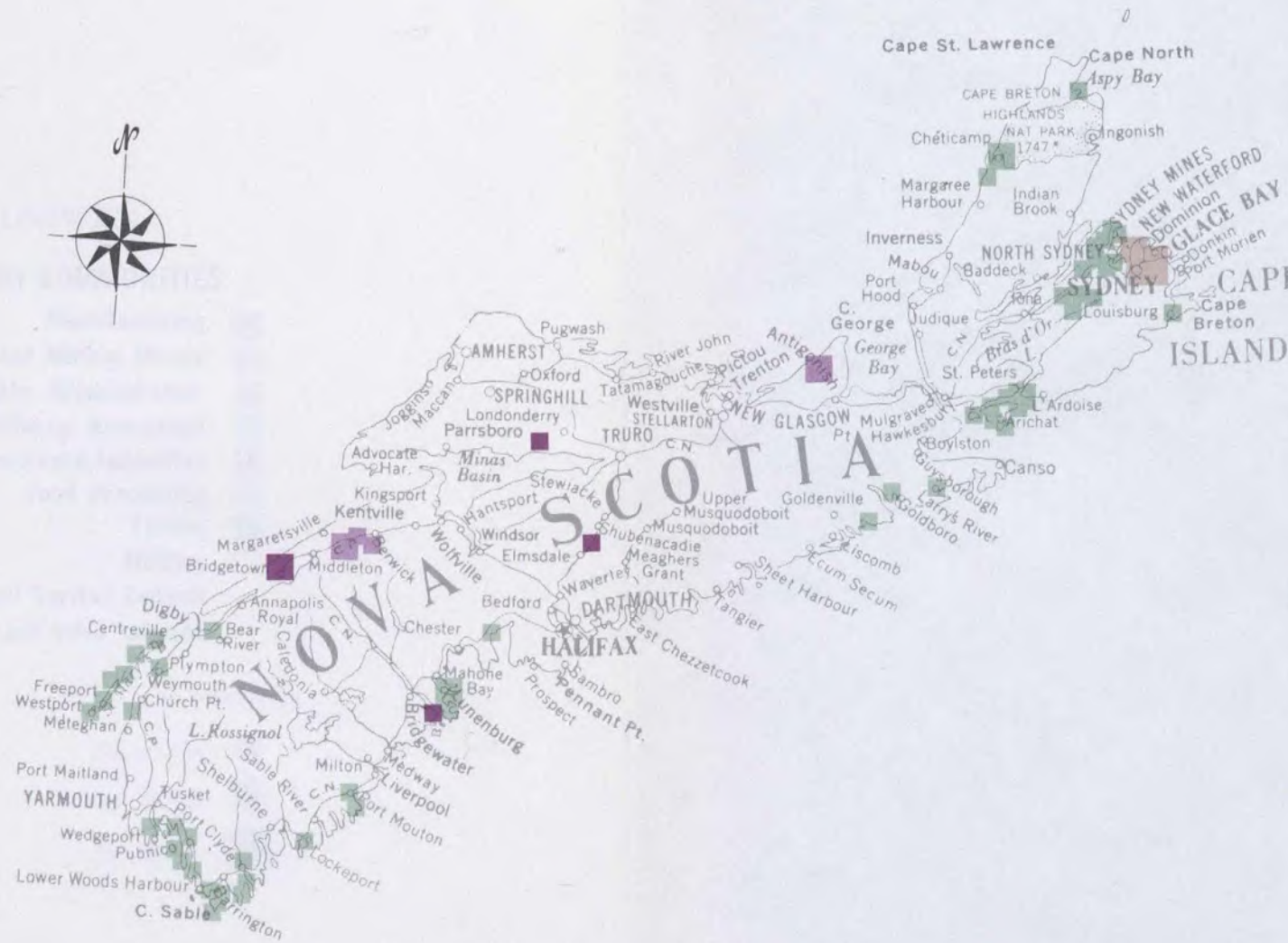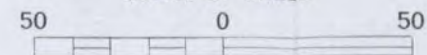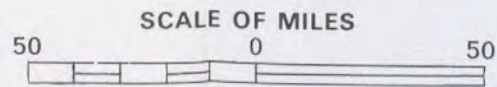**Construction, Tourism, and other services**

POPULATION

Up to 1 000
Up to 30 000
Over 30 000

NEW
BRUNSWICK

Miscou I.
Shippegan I.

Dalhousie
Jacquet River
Grande-Anse
Shippegan
Lameque
Inkerman
Tracadie
Caraquet
Bathurst
Bathurst Mines
Burnsville
Red Pine
Lower Neguac
Heath Steele
Bartibog
Edmundston
Green River
Whites Brook
St-Quentin
Nepisiguit R. 2690
Flemming
St-Léonard
Grand Falls
Plaster Rock
Connors
Chatham
Newcastle
Loggieville
Blackville
Rogersville
Richibucto
Kent Jct.
Bath
Juniper Sta.
Florenceville
Centreville
Napadogan
Boiestown
Harcourt
Buctouche
Cocagne
Notre-Dame
Hartland
Stanley
McGivney
Salmon R.
Chipman
Woodstock
Millville
Debec Jct.
Canterbury
Marysville
Grand Salisbury
Havelock
Petitcodiac
Memramcook
MONCTON
Shediac
Cape Tormentine
Port Elgin
Dorchester
Sackville
Otis
Saint John
Oromocto
Gagetown
FREDERICTON
Fredericton Jct.
Harvey Sta.
Sussex
Norton
Hillsborough
Elgin
Albert
McAdam
Hoyt Sta.
Hampton
FUNDY NAT PARK
Alma
Welsford
Rothesay
St. Martins
St. Stephen
Milltown
Westfield Beach
Bonny River
LANCASTER
SAINT JOHN
St. Andrews
Lepreau
St. George
Passamaquoddy
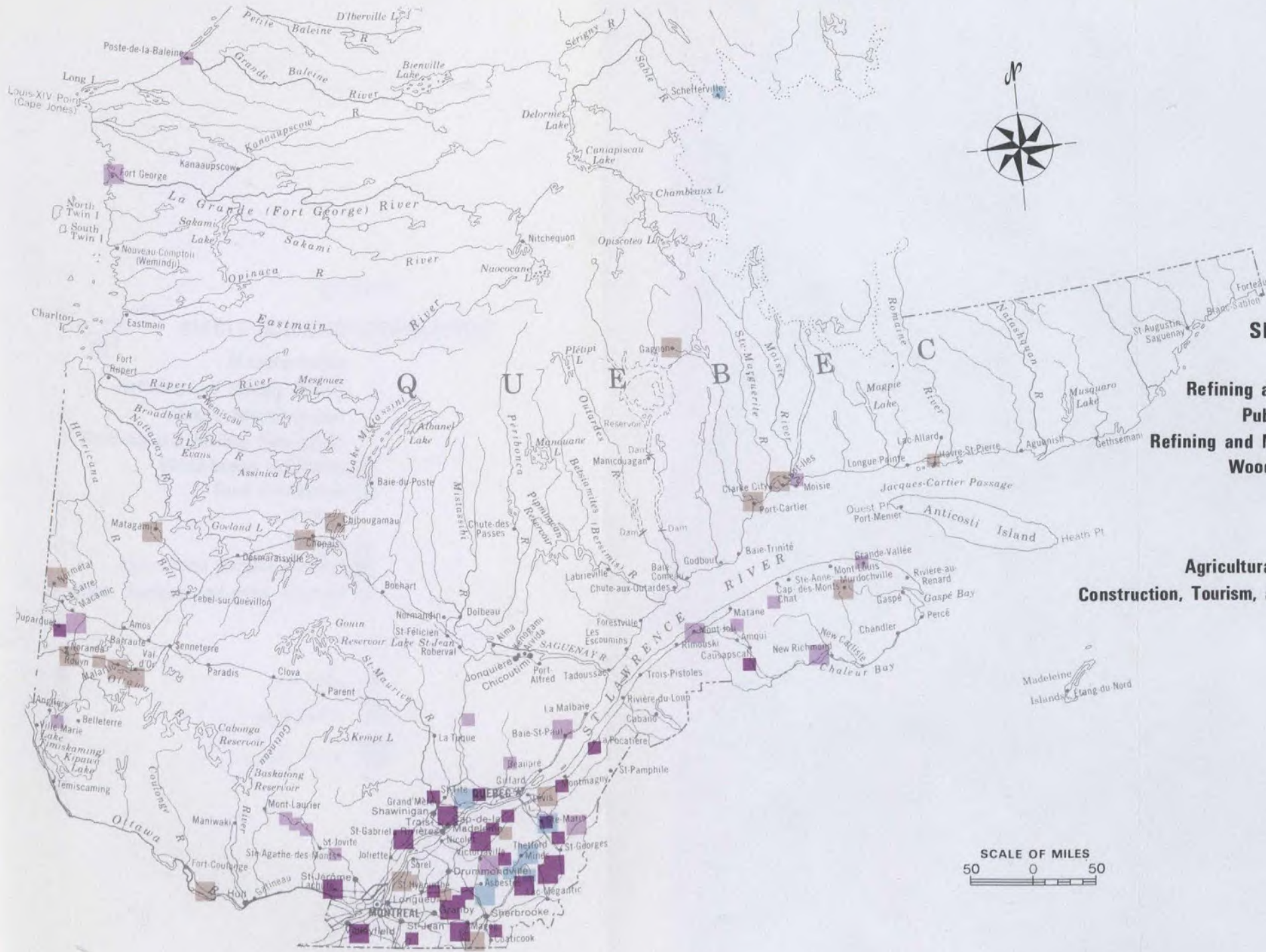Welshpool
Grand Manan

QUEBEC

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

SCALE OF MILES
50   0   50

QUEBEC

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries ■
Food Processing ■
Fishing ■
Utilities ■
Agricultural Service Centres ■
Construction, Tourism, and other services ■

POPULATION
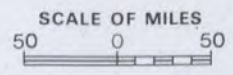
Up to 1 000 ■

Up to 30 000 ■

Over 30 000 ■

SCALE OF MILES
50   0   50

ONTARIO

SINGLE-INDUSTRY COMMUNITIES

Manufacturing

Refining and Mining: Metals

Public Administration

Refining and Mining: Non-metals

Wood-based Industries

Food Processing

Fishing

Utilities

Agricultural Service Centres

Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

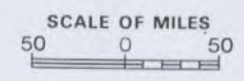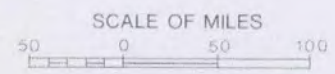SCALE OF MILES

50   0   50   100

ONTARIO

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

SCALE OF MILES
50   0   50   100

ONTARIO

LAKE HURON

Georgian Bay

LAKE ONTARIO

LAKE ERIE

Lake Superior

MANITOBA

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000
Up to 30 000
Over 30 000

SCALE OF MILES
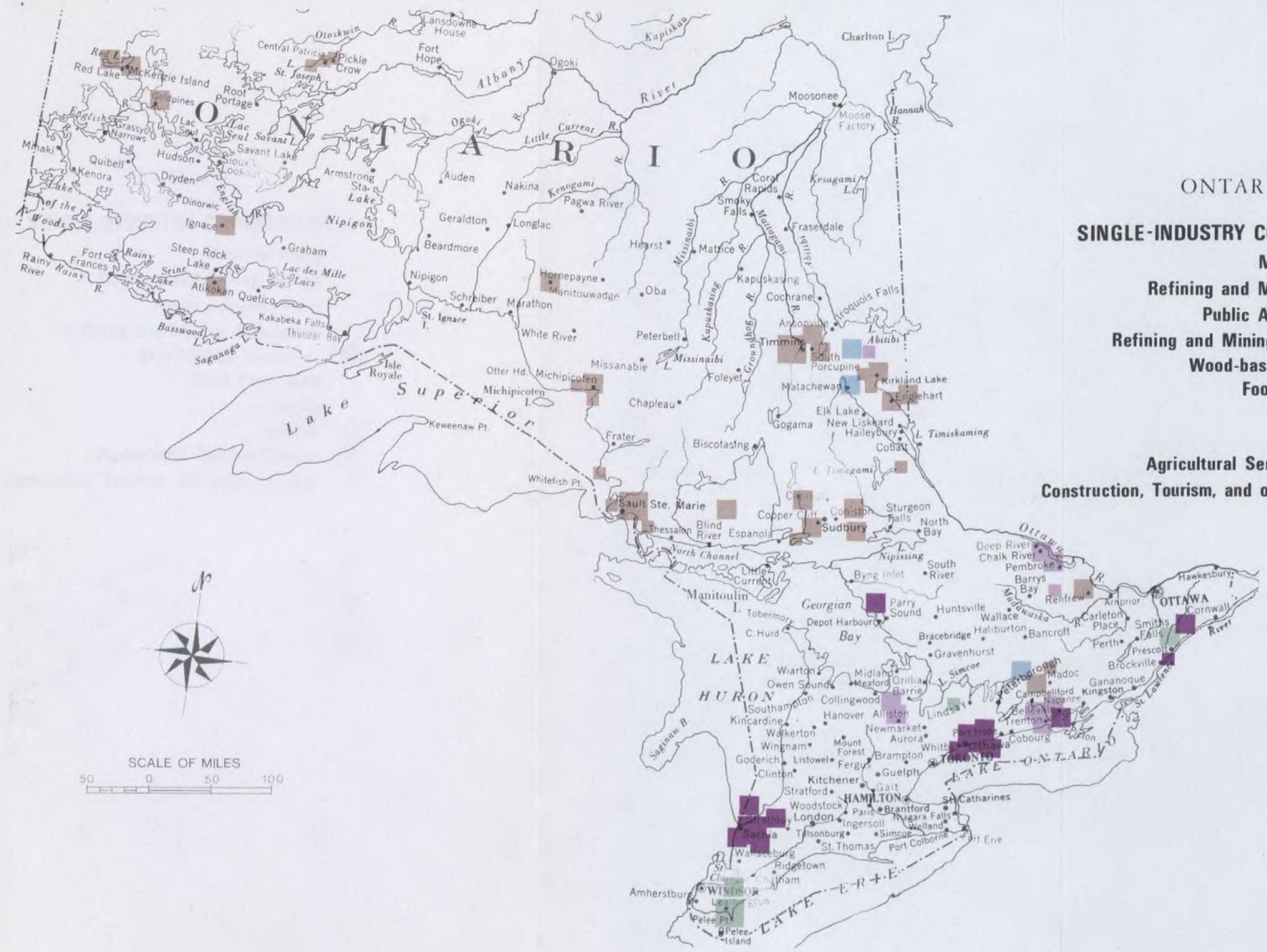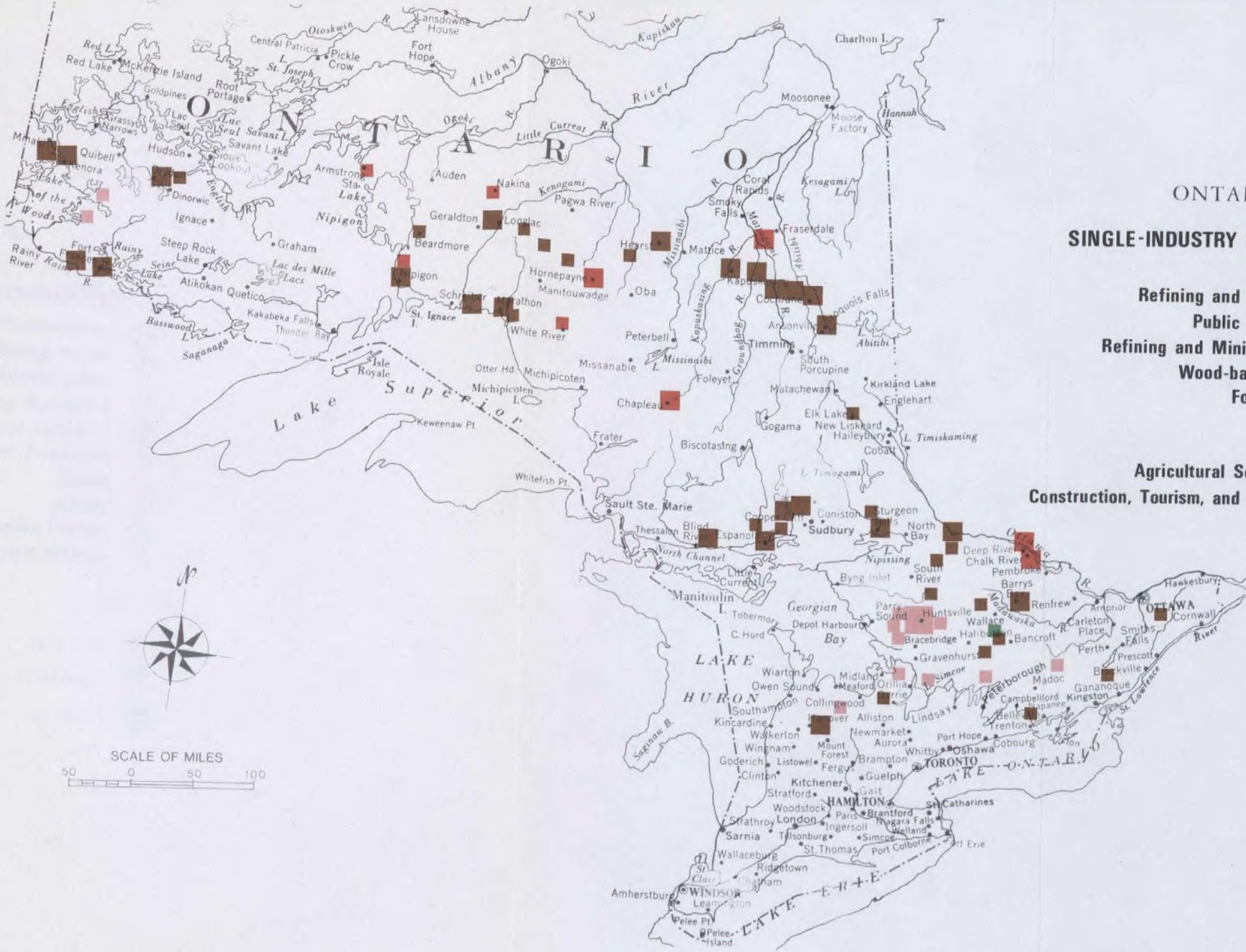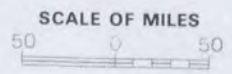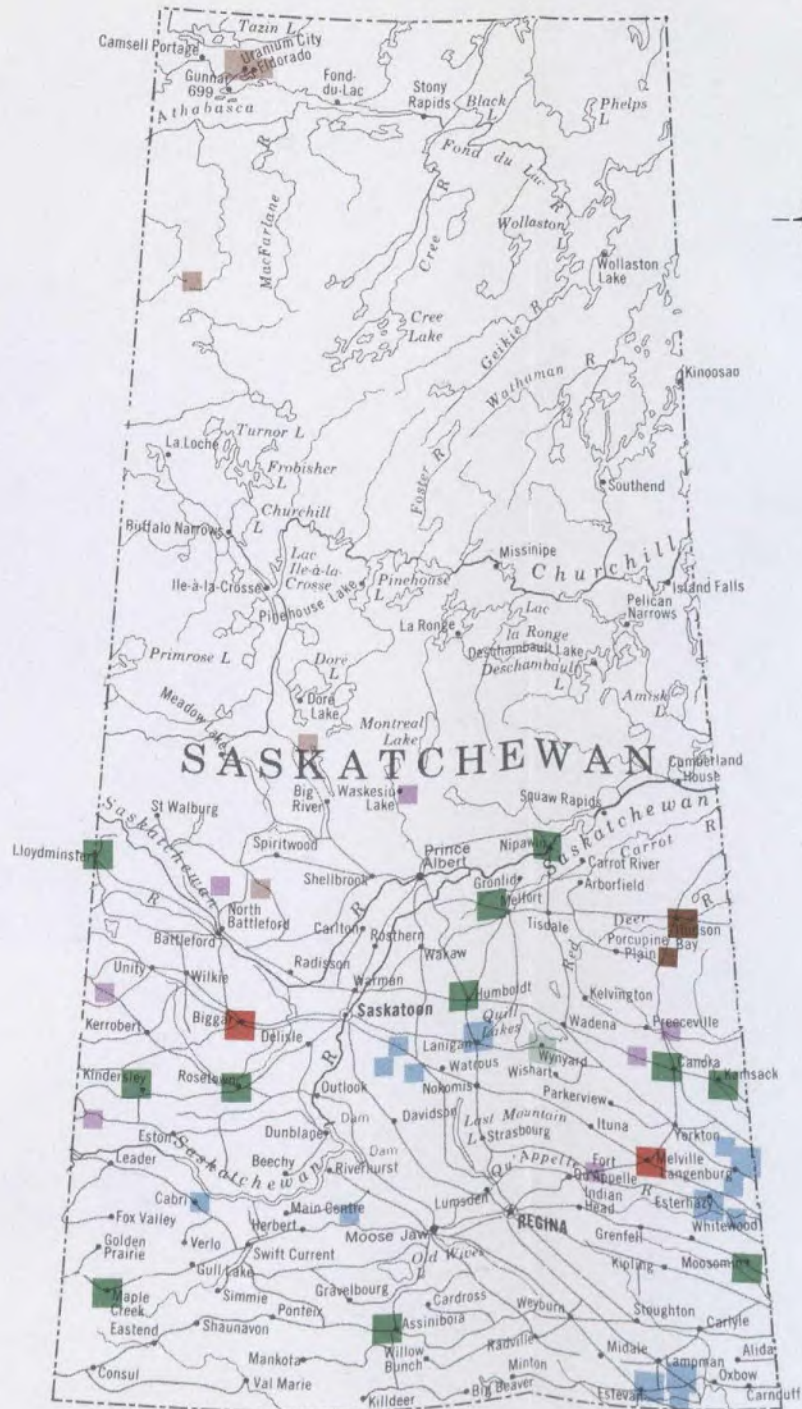50   0   50

MANITOBA

WINNIPEG

SASKATCHEWAN

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000

Up to 30 000

Over 30 000

SCALE OF MILES
50   0   50

SASKATCHEWAN

Tazin L.
Camsell Portage
Uranium City
Eldorado
Gunnar 699
Athabasca
Fond-du-Lac
Stony Rapids
Black
Phelps L.
Fond du Lac R.
Wollaston
Wollaston Lake
Cree Lake
Kinoosao
MacFarlane
Cree R.
Geikie R.
Wathaman R.
Turnor L.
La Loche
Frobisher L.
Southend
Churchill
Buffalo Narrows
Foster R.
Churchill
Missinipe
Lac Ile-à-la-Crosse
Ile-à-la-Crosse
Pinehouse
Island Falls
Pinehouse Lake
Pelican Narrows
Lac la Ronge
La Ronge
Deschambault Lake
Deschambault L.
Amisk L.
Primrose L.
Dore L.
Dore Lake
Montreal Lake
Cumberland House
Meadow Lake
Big River
Waskesiu Lake
Squaw Rapids
St Walburg
Spiritwood
Prince Albert
Nipawin
Carrot River
Carrot R.
Lloydminster
Shellbrook
Gronlid
Melfort
Arborfield
North Battleford
Carlton
Rosthern
Tisdale
Deer
Porcupine
Hudson Bay
Battleford
Radisson
Wakaw
Plain
Unity
Wilkie
Watrous
Humboldt
Kelvington
Kerrobert
Biggar
Delisle
Saskatoon
Quill Lakes
Wadena
Preeceville
Kindersley
Rosetown
Outlook
Lanigan
Nokomis
Wishart
Parkerview
Canora
Kamsack
Eston
Dunblane
Davidson
Last Mountain L.
Ituna
Yorkton
Leader
Beechy
Riverhurst
Strasbourg
Qu'Appelle
Fort Qu'Appelle
Melville
Langenburg
Cabri
Main Centre
Lumsden
Indian Head
Esterhazy
Fox Valley
Herbert
Moose Jaw
REGINA
Grenfell
Whitewood
Golden Prairie
Verlo
Swift Current
Old Wives
Kipling
Moosomin
Gull Lake
Gravelbourg
Cardross
Weyburn
Stoughton
Carlyle
Maple Creek
Simmie
Pontelx
Assiniboia
Eastend
Shaunavon
Radville
Midale
Alida
Consul
Mankota
Willow Bunch
Minton
Lampman
Oxbow
Val Marie
Killdeer
Big Beaver
Estevan
Carnduff

ALBERTA

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000
Up to 30 000
Over 30 000

SCALE OF MILES
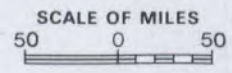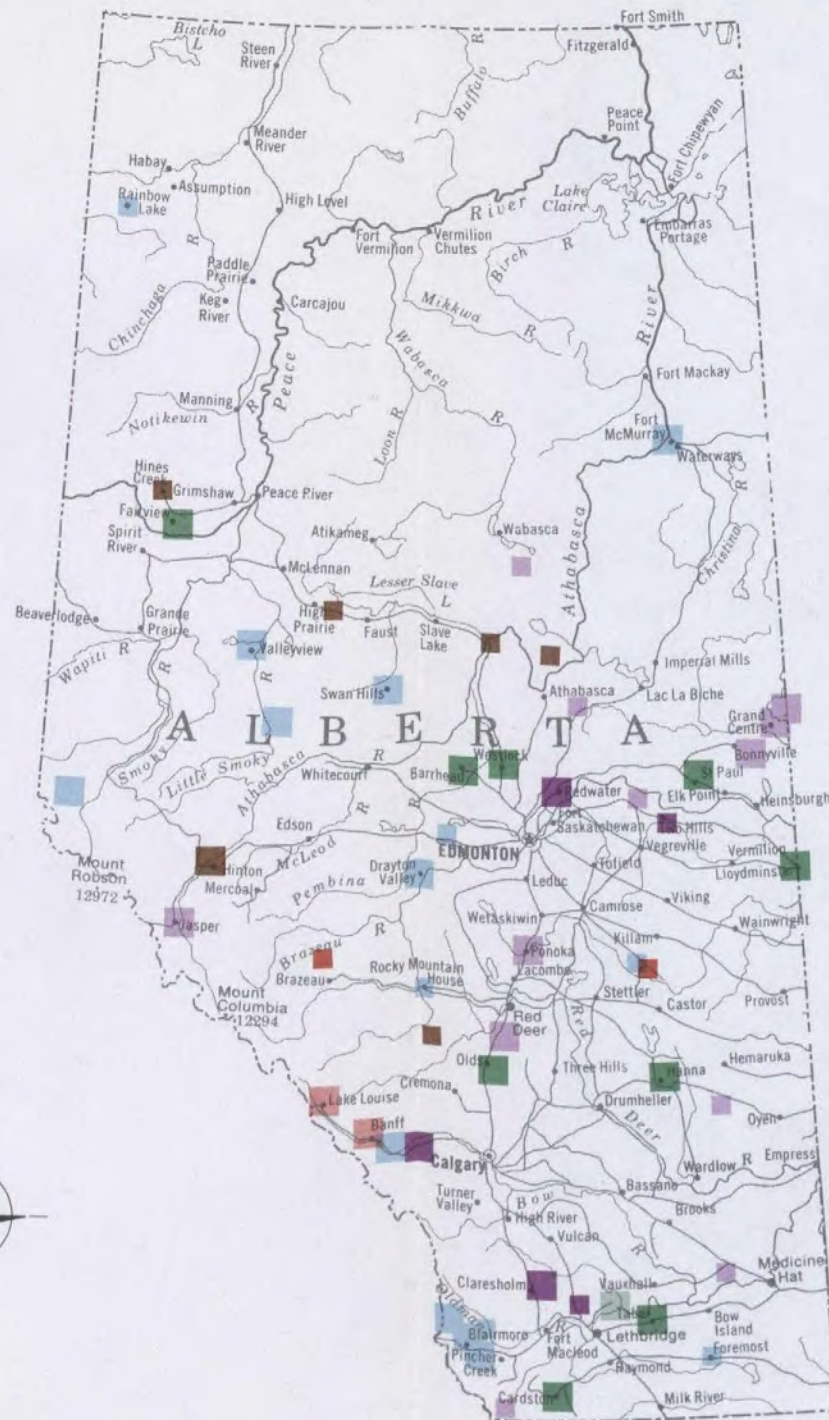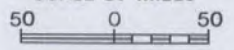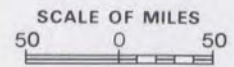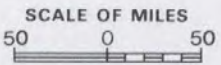50   0   50

BRITISH COLUMBIA

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1 000
Up to 30 000
Over 30 000

BRITISH

COLUMBIA

SCALE OF MILES
50   0   50

VANCOUVER
ISLAND

VICTORIA

Telegraph Creek
Stikine
Stikine R.
River
Iskut R.
Ware
Muskwa
Trutch
Finlay R.
Sikanni Chief R.
Beatton River
Fontas R.
Pink Mountain
Wonowon
Fort St John
Taylor
Halfway R.
Hudson Hope
Williston Lake
Dam
Chetwynd
Dawson Creek
Stewart
Omineca R.
Manson Creek
Portland Canal
Nass R.
Takla Landing
Takla L.
Mackenzie
Pine R.
New Hazelton
Hazelton
Kincolith
Bulkley R.
Babine Lake
McLeod Lake
Murray R.
Dixon Entrance
Port Simpson
Skeena R.
Smithers
Stuart L.
Fort St James
McGregor R.
Prince Rupert
Terrace
Houston
Burns Lake
Fort Fraser
Nechako R.
Cape Knox
Masset
Porcher I.
Kitimat
Morice L.
François L.
Vanderhoof
Glscome
Prince George
Graham
Douglas Chan.
Kemano
Ootsa L.
Dam
Fraser R.
Queen Charlotte
Island
Queen Charlotte
Banks I.
Sandspit
Eutsuk L.
McBride
Mount R. Robson 12972
Islands
Louise I.
Princess Royal I.
Quesnel
Wells
Moresby I.
Lyell I.
Dean Channel
Quesnel L.
Valemount
Aristazabal I.
Rose Harbour
Chilcotin R.
Kunghit I.
Ocean Falls
Bella Coola
Campbell Island
Williams Lake
Blue River
Dam
Queen Charlotte Sound
Namu
River
100 Mile House
Field
Rivers Inlet
Mount Waddington 13104
Chilko L.
70 Mile House
Adams L.
Louis Creek
Shuswap L.
Golden
Knight Inlet
Chilko L.
Clinton
Revelstoke
Alert Bay
Simoom Sound
Bute Inlet
Bralorne
Arrowhead
Invermere
Port Alice
Kelsey Bay
Lillooet
Ashcroft
Kamloops
Salmon Arm
Upper Arrow
Nakusp
Cape Cook
Campbell River
Jervis Inlet
Lytton
Vernon
Lumby
Lower Arrow Lake
New Denver
Kootenay River
Checleset B.
Tahsis
Powell River
Merritt
Okanagan L.
Kaslo
Kimberley
Fernie
Nootka I.
Courtenay
Britannia Beach
Kelowna
Slocan
Kootenay L.
Cranbrook
Parksville
North Vancouver
Hope
Summerland
Penticton
Nelson
Castlegar
VANCOUVER
Port Alberni
Nanaimo
Ladysmith
Vancouver
New Westminster
Chilliwack
Princeton
Cawston
Oliver
Rossland
Trail
Creston
Yahk
Tofino
Ucluelet
Bamfield
Duncan
Cawston
Grand Forks
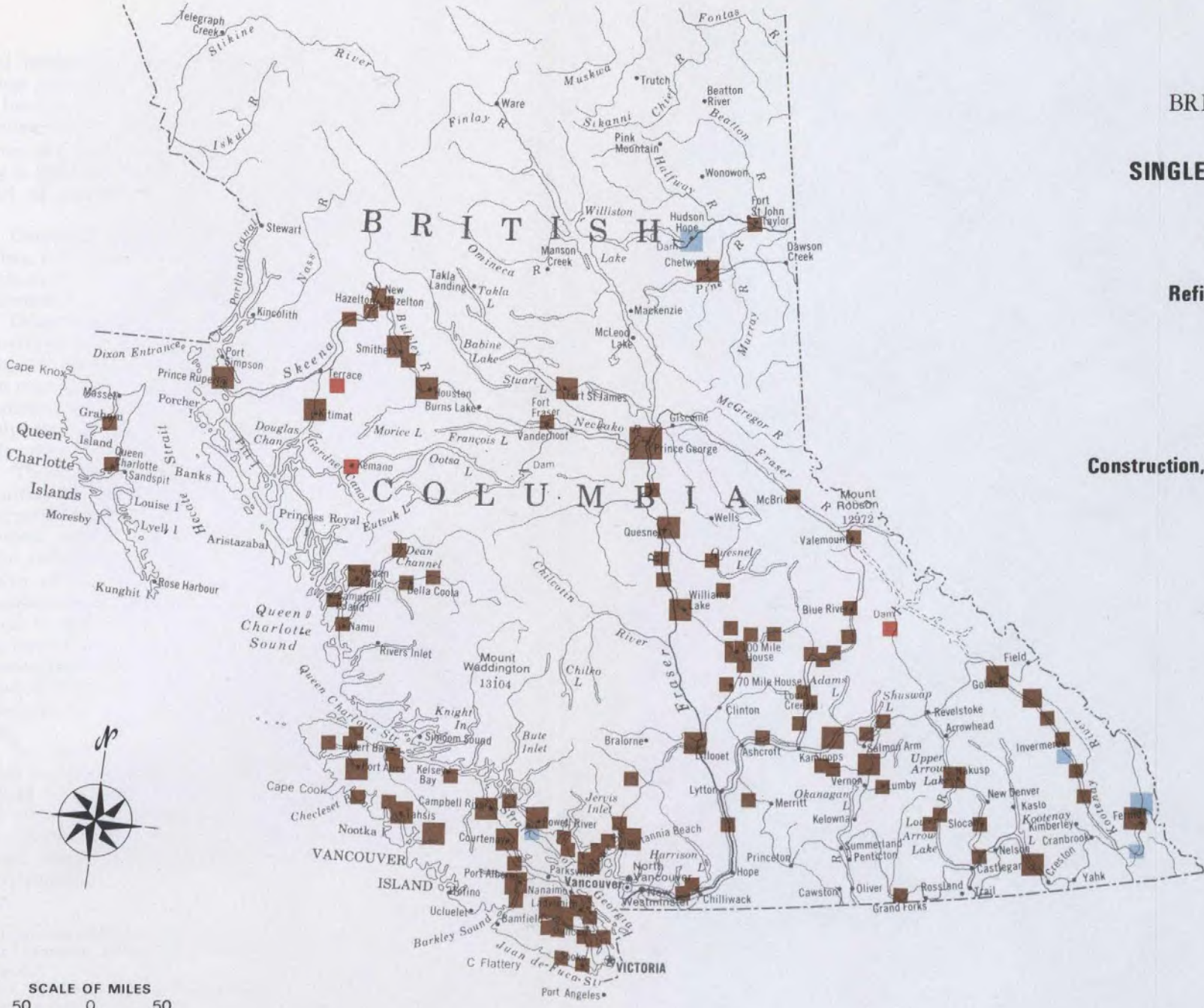Borkley Sound
Sooke
Juan de Fuca Str.
C Flattery
Port Angeles

BRITISH COLUMBIA

SINGLE-INDUSTRY COMMUNITIES

Manufacturing
Refining and Mining: Metals
Public Administration
Refining and Mining: Non-metals
Wood-based Industries
Food Processing
Fishing
Utilities
Agricultural Service Centres
Construction, Tourism, and other services

POPULATION

Up to 1,000
Up to 30,000
Over 30,000

B R I T I S H

C O L U M B I A

SCALE OF MILES
50   0   50

Telegraph Creek
Stikine River
Iskut R.
Stewart
Portland Canal
Nass R.
Kincolith
Hazelton
New Hazelton
Smithers
Terrace
Kitimat
Kemano
Port Simpson
Prince Rupert
Dixon Entrances
Cape Knox
Masset
Graham
Porcher
Queen Charlotte
Islands
Moresby
Lyell I.
Louise I.
Aristazabal
Kunghit
Rose Harbour
Sandspit
Banks I.
Princess Royal
Eutsuk L.
Dean Channel
Ocean Falls
Namu
Bella Coola
Rivers Inlet
Queen Charlotte Sound
Mount Waddington 13104
Knight Inlet
Kingcome Sound
Bute Inlet
Cape Cook
Checleset
Nootka
Ahsis
Kelsey Bay
Campbell River
Jervis Inlet
Powell River
Britannia Beach
Courtenay
VANCOUVER ISLAND
Tofino
Ucluelet
Bamfield
Barkley Sound
C. Flattery
Port Angeles
Juan de Fuca Str.
VICTORIA
Nanaimo
Ladysmith
Parksville
Port Alberni
North Vancouver
Vancouver
New Westminster
Chilliwack
Harrison L.
Hope
Princeton
Cawston
Oliver
Grand Forks
Rossland
Trail
Yahk
Creston
Cranbrook
Kimberley
Nelson
Castlegar
Kootenay L.
Slocan
Kaslo
New Denver
Nakusp
Upper Arrow Lake
Lower Arrow L.
Summerland
Penticton
Kelowna
Okanagan L.
Vernon
Lumby
Salmon Arm
Shuswap L.
Revelstoke
Arrowhead
Invermere
Field
Golden
Fraser R.
Columbia R.
Fernie
Merritt
Lytton
Ashcroft
Clinton
Lillooet
Bralorne
70 Mile House
100 Mile House
Adams L.
Clearwater
Blue River
Dam
Williams Lake
Valemount
Quesnel L.
Quesnel
Wells
McBride
Mount Robson 12972
Prince George
Giscome
Neckako
Vanderhoof
Fort Fraser
Fort St. James
Stuart L.
Burns Lake
Houston
Babine Lake
Morice L.
François L.
Ootsa L.
Chilcotin River
Chilko L.
McLeod Lake
Mackenzie
Takla Landing
Takla L.
Manson Creek
Omineca R.
Williston Lake
Finlay R.
Ware
Trutch
Muskwa R.
Sikanni Chief R.
Pink Mountain
Wonowon
Halfway R.
Beatton R.
Fort St. John
Taylor
Hudson Hope
Dam
Chetwynd
Pine R.
Murray R.
McGregor R.
Dawson Creek
Fontas R.
Beatton River
Kamloops
Lumby Lake
Kootenay R.

deposits and fishing grounds. Some communities are based on manufacturing and are close to sources of inexpensive natural energy, e.g. furniture factories in Ontario and Quebec, and textile mills in Quebec. Some communities service client industries and their locations are chosen with this in mind, e.g. railroad towns strung along a right-of-way, and commercial and market centres in the midst of agricultural hinterlands and at transshipment points.

Canadian single-industry communities usually fall into one of two broad classes: communities established during the early settlement of Canada; and newer, planned towns created by the requirements of the industry.

Communities of the first type are most common in the Atlantic provinces and tend to be based on the fishing industry. Elsewhere in the country, such communities have become diversified, urban centres, or have disappeared altogether. Most single-industry communities are of the second type. The newer towns are the outposts of the heavy-industrial, rather than of the settlement frontier.[5]

These towns are still developing. Many have few of the amenities of urban life; others lack what are, for a city dweller, the necessities. In almost all cases, and in contrast to the first broad class of single-industry towns, the industry pre-dates the community. However, this difference is frequently one of degree rather than of kind. These two types of single-industry communities exhibit strong similarities, and their differences tend to reflect the degree and character of the urbanization they have experienced. Thus, the differences one observes are those associated with rural-urban divisions: community size, size and type of housing stock, municipal services, and migration patterns, particularly of adolescents and young members of the labour force.

In addition, newer, urban-oriented towns show limited social interaction and clear stratification by occupational status.[6] Indeed, in some communities these factors may be reinforced by ethnic divisions (often reflecting the composition of the town's original labour force); and by divisions between imported and native inhabitants, particularly in the case of northern settlements.[7]

[5]Rex Lucas, *Minetown, Milltown, Railtown. Life in Canadian Communities of Single Industry* (Toronto: University of Toronto Press, 1971), p. 20.
[6]*Ibid.*, chap. 6 and 7.
[7]Alick Andrews, "Social Crisis and Labour Mobility. A Study of Economic and Social Change in a New Brunswick Railway Community," MA thesis (University of New Brunswick, 1967) pp. 72-73. Quoted in *Lucas*, esp. pp. 127-140.

STAGES OF DEVELOPMENT — THE AGE CYCLE

Previous studies of the phenomenon of single-industry communities have pointed to stages in the development of such communities. For example, Lucas distinguishes four stages: construction, recruitment of citizens, transition and maturity.[8] Wichern et al. identify three stages and two intermediate phases: undeveloped stage, emergent phase; transitional stage, maturing phase; and developed stage.[9]

Overall, the various aproaches are similar, in that they postulate a series of discrete steps in a community's evolution, marked by increasing social differentiation and expansion of community infrastructure. This latter aspect of development refers to the often tenuous process of establishing and maintaining schools, churches, commercial establishments, and community services and amenities.

Lucas, in particular, discusses two important correlates of a community's stage of development that are likely indicators of future viability should a community's economic base be threatened.[10] First, he argues that single-industry communities experience an age cycle — distinct periods in which the age distribution of community residents is skewed. These occur during the recruitment and transition stages. In the recruitment stage the community usually has a young and homogeneous work force (mainly males under 35). Many of these workers have families and, for some time, there are few old people and a disproportionate number of children in relation to the overall community population. During the transition stage, the original residents reach retirement age, their children mature and the elderly are over-represented in the community. In particular, if a community in this transition stage is entering a period of decline, perhaps due to the steady depletion of a natural resource, the skewedness of the age distribution will be even more pronounced, as adolescents leave for jobs or education elsewhere.

The second phenomenon discussed by Lucas is a characteristic shift in homeownership, from the company (which is usually the developer-builder) to the residents.[11] This is especially significant because homeownership represents a substantial accumulation of private wealth, which stands to be lost in a declining single-industry community.

[8]Lucas, Minetown, Milltown, Railtown, chap. 2-5.
[9]P. H. Wichern, G. Kunka and D. Waddell, "The Production and Testing of a Model of Political Development in Resource Frontier Communities" (Centre for Settlement Studies, University of Manitoba, 1971), pp. 14-20.
[10]Lucas, Minetown, Milltown, Railtown, pp. 66-7.
[11]Ibid., pp. 74-7.

SOCIAL AND ECONOMIC DIMENSIONS

The central problem facing a single-industry community is the insecurity associated with its dependence on a single economic base. Connected with this basic condition are two sets of situational factors: those that are common to most single-industry communities in good times and bad, and those that become problematic only when the community's economy is threatened.

Many such communities are geographically isolated and must consequently be self-dependent. In addition, the predominance of the local industry means that the company's problems are the town's problems. Often combined with a homogeneous population, these factors frequently result in a fish-bowl feeling deriving from a near claustrophobic reduction of alternatives; and a perceived lack of activity and vitality. Lack of access to a broad variety of commercial and recreational facilities, and a sense of being "away" are two of the most frequent complaints voiced by residents.

Within the community, this can produce special problems. Shift work can strain family cohesion, and social life can be difficult to maintain, particularly if friends and neighbours are on different shifts. In addition, the particular camaraderie that develops from shared work language and experience can further complicate family relationships in which wives and children feel cut off from the work that takes up so much of the wage-earner's time.

Geographic isolation has a particularly heavy impact on adolescents. Usually, there are few opportunities for employment outside the dominant industry and the situation is particularly bleak for women. Sons and daughters are often forced to go elsewhere for jobs or for further education.

The occupational organization of the company can create problems as well. Vertical mobility is often limited by union segmentation and strict seniority practices, and by the preference of many companies for imported senior management personnel. These factors complicate a situation of already limited mobility for local labour. As we have seen, employment alternatives are generally limited for local women and adolescents. However, the problem is often a general one, and is especially significant when a shutdown is threatened. Often, an employee has seniority rights only in his firm, or, in the case of the non-management personnel, in his plant. Finally, few companies or unions provide for portable retirement pensions and, thus,

the mobility that does exist for most residents occurs, for most workers, only with a loss in pension funds.

Community infrastructure and, in particular, the three areas of housing, education, and health care are problems for single-industry communities. The company generally initiates the construction of houses and sells them to residents at prices well below external market values. In many cases, however, residents feel themselves to be transient and choose not to invest in a house. The housing stock tends to become run down; and there are few entrepreneurs engaged in renovation, redevelopment and construction. Consequently, there is often a lack of variety in new housing.

Combined with the particular age distribution existing among residents, home owership can be a powerful indicator of local expectations. Few people are likely to buy houses if they expect to stay only for a short time. Declining property values may reflect a loss of confidence in the town's future, as may fall-offs in mortgage and home-improvement loan activity.

Education is a limiting factor for many children in single-industry communities. Although local facilities and instruction may be adequate, they can rarely compete with urban areas. Young people are forced to go elsewhere for post-secondary education or technical training not offered by the industry's apprenticeship programs, and the financial burdens can be substantial. Furthermore, the individual's chances competing for jobs outside the community are substantially reduced by lack of training. In addition, the usual lack of local employment opportunities for university graduates results in a steady out-migration of the best-educated and best-trained, that may pose problems later.

Medical and dental services are often inadequate. Many professionals are simply unwilling to trade an urban practice and its accompanying income and lifestyle for life in a single-industry town. Equipment and facilities involving high capital expenditures are rare, especially if the town is small; and specialist care, hospital services and surgery often require long and costly trips to a major centre. Maintaining the continuity of medical and dental care is also difficult, as the turnover is high among professionals and para-professionals in these fields.

THE SINGLE-INDUSTRY COMMUNITY
IN DISTRESS

All of these factors become acute in the case when a local industry shuts down its operations. The first and most important effects are substantial unemployment and loss of income among employees of the dominant industry and of the dependent service, manufacturing and primary-production establishments.

The effects of a local shutdown are strongly manifested in both economic and social conditions, the fundamental problems being produced by the relative lack of mobility of local labour. Beyond the perimeters of the local plant, particular skills or trades may not be in demand. If the worker can find alternative employment, it is likely to be at low wages, or to necessitate a move to another community. Employment skills — one's market value when looking for work — depreciate without use. Retraining and educational opportunities may pose special problems; older workers, in particular, may find transition to a new trade or occupation extremely difficult.

The social and psychological costs of involuntary unemployment are well known. But when it is combined with a basic inability to control the situation — as occurs in the decline of single-industry communities — pressures may become crushing. These difficulties can be magnified by factors of age, sex, and skill level and, with the almost inevitable loss of private wealth, can pose severe strains on individual and family equilibrium.

These costs are not borne by individuals alone. A rapidly-declining community represents a massive waste of social capital, some of which will have to be reproduced in communities to which the population migrates: unoccupied buildings and homes, unused public utilities, developed but deserted properties, transportation facilities — in short, all the elements of community infrastructure.

Adjustment is a major problem for those who remain. The maintenance of municipal services and various social conveniences is characterized by substantial economies of scale. In the case of declining communities, many amenities of town life disappear as "break-even" rates of return cannot be secured on local investments, and as the local tax base contracts. Elaborate educational and medical facilities and specialized personnel become luxuries; and the community's isolation becomes more

pronounced. Those residents who remain often have special needs. Many are older people, whose financial circumstances and/or other ties to the community caused them to stay. They may require now-unavailable medical or nursing care, or assistance in getting about.

2. SELECTION CRITERIA AND THE DATA BASE

Despite widespread agreement on what is intuitively meant by a single-industry community, no rigorous conceptual or operational definition had been evolved by which such Canadian communities could be systematically identified and analyzed. The initial conceptual definition was relatively straightforward although broader than the "company-town" concept sometimes associated with the term single-industry community.

> A single-industry community is one in which there exists a single dominant economic activity (a single employer or group of employers in a single activity/industry) and which is not within commuting distance of another area or areas offering alternative employment opportunities.

The evolution of an operative definition or, as it subsequently turned out, definitions, was considerably more complex. It was necessary to assemble a data base that would facilitate the rigorous identification of single-industry communities and the specification of the magnitude and dimensions of the problems of single-industry communities. The resultant data base was designed not only to identify such communities but also to become an up-to-date inventory that could be used in conjunction with a system of leading indicators.

In view of the complexity of the research effort, this section describes the research methodology developed to identify single-industry communities and investigate their dimensions.

SELECTION CRITERIA

An attempt has been made to identify all single-industry communities regardless of the present or future viability of the community's economic base.

For the purposes of this study, communities were operationally defined according to the standard geo-coding system of the Canadian census. Thus, a community is identified as either a) a census agglomeration (CA), where such exists; b) an incorporated municipality, that is not a part of a census agglomeration; or c) a census subdivision where no incorporated town or municipality exists. Later, unincorporated settlements within a given census subdivision not having the same economic base as the overall subdivision were identified on the basis of additional information sources, such as field offices of governmental departments.

From the outset, certain types of communities were excluded from the study because their unique nature required unique policies to handle their problems. These were as follows:
a) CMAs or communities within commuting distance of them;[12]
b) agriculture-based communities except for agricultural service centres that have neither distinct industrial activities nor the broader role of a regional service centre;
c) communities north of the 60th parallel; and
d) Indian Reserves.

Furthermore, a minimum size cut-off in terms of population and/or labour force was to be adopted, although groups of small communities relatively close together and possessing the same dominant activity were to be included. This has not yet been done, in order to facilitate a complete assessment of the magnitude of the problem. Should a cut-off size be established, exclusions should be checked against the master list of communities so that identified settlements serving as dormitories for activities in other locations, or situated outside municipal boundaries, are not excluded. Moreover, very small single-industry communities (e.g. population under 100 or 200) are seldom isolated. Generally, several such communities spring up in a region and share a common industrial base.

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[12]Except where the CMA shares the same single economic base, e.g. Sudbury, Ontario, and neighbouring communities. In fact, Sudbury has been included in the Ontario listing of single-industry communities due to the overriding importance of its mining activities for the CMA and its surrounding districts. It has not, however, been included in any calculations or analyses conducted for the study.

Due to the nature of the available data, more sophisticated identification methods (e.g. the minimum requirements approach)[13] were eschewed.

THE DATA BASE AND
IDENTIFICATION PROCEDURE

Three nation-wide data bases were assembled: the 1971 census, disaggregated to municipality level; the 1971 census of manufacturing; and a private source (which for confidentiality reasons must remain unnamed). In addition, many partial data bases were used to obtain supplemental information (e.g. provincial community profiles and Manpower and Immigration area profiles). The basic data on employment by industry or activity was mounted on a computer system and passes made at it using a variety of operational definitions, depending on the form of the data.

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[13]Actually the minimum-requirements approach has two possible uses:
   a) to identify those communities that are single-industry communities through recognition of each community's dominant economic function or activity; and
   b) to determine the degree of specialization of the dominant activity in each community and subsequently order all communities according to the dominance of the prevalent economic activity.

The hypothesis is that all communities have common or basic economic activities. These activities are a norm for all communities so that a dominant or principal activitity within a community is a deviation from the norm. This approach falls apart both conceptually and mathematically when the basic economic activities cannot be defined or are not present in one or several communities under study. This problem arises in studies such as this where the communities being studied are much smaller than those previously reported in the literature.

The degree-of-specialization concept is simply the indexing and ordering of communities by the dominance of their respective principal activity. It imparts little interpretation when subjectively comparing communities and imparts no interpretation for identifying characteristics that may define a grouping of single-industry communities. Furthermore, the specialization index is mathematically weak when extreme cases are admitted to the analysis. The specialization index is mathematically undefined when a community is absolutely specialized and has no basic activities whatsoever. As a result, the minimum-requirements approach was rejected as a method both for identifying and for classifying or grouping single-industry communities. Instead, the relatively straightforward Herfindahl index was used to identify specialized communities, and multivariate factor analysis techniques were used for ordering communities.

1971 Census

The first major source was the 1971 census, at the municipality or census subdivision level, with employment coded to the three-digit standard industrial classification (SIC) of the census respondent's employer.[14]

The census employment-coding identifies dominant standard-industrial-classification activities including fishing, transportation, merchandising and services and the public administration sector. It cannot, however, identify dominant employers.

a) The first operational definition specified that employment in the community in a given standard industrial classification was greater than or equal to 30 per cent of total community employment as reported in the 1971 census.

b) In the second operational definition, an index of community economic specialization (S_i), which corrected for the dispersion of other economic activity within the community, was used.[15] Initial data passes were made using a minimum S_i index value of 0.3. However, it was recognized that the complex of services normally generated by larger communities would require adjustment of the specialization index for population size. Accordingly, additional runs were conducted, using the following cut-off value for the specialization index.[16]

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[14]This data, is of course, available for any municipality or census subdivision in Canada. Hence it is available for a range of analytical purposes not related to single-industry issues.

[15]The specialization index which approximates the Herfindahl index is a measure of concentration, originally developed for measuring market shares of sales volume. The specialization index(s) is employed to measure the degree of economic specialization in a community. It is defined as follows:

$$S_i = \sqrt{\sum_{i=1}^{n} \left[\frac{E_{ij}}{E_i} \right]^2}$$

where E_{ij} = employment in community i, in activity
j (j = 1, 2, 3, ... n)
E_i is total employment in community i
and $S_i \leq 1$

[16]Later, when single-industry communities within a non-single-industry census subdivision were identified, S_i values below those set out above were admitted for the overall subdivision.

Population Range	Specialization Index Value (Max. = 1)
1 — 999	$\geq .3$
1 000 — 2 499	$\geq .3$
2 500 — 4 999	$\geq .3$
5 000 — 9 999	$\geq .2$
10 000 — 29 999	$\geq .2$
30 000 + (non-CMA)	$\geq .15$

The variation in index values, according to community size, was made to allow for the complex of services normally generated by any larger community regardless of the nature of its economic base. 1971 census data were again used. The process permitted the identification of communities with primary, secondary (manufacturing), and tertiary (e.g. services and public administration) economic bases, but did not permit the identification of the actual employer(s).

Finally, to capture communities dependent on related economic activities (e.g. fishing and fish processing, sawmills and logging), we identified communities in which the percentage of total employment in the major related standard industrial classifications exceeded a stated value, according to population, as follows.

Population Range	Sum of the Percentage of Employment of Major Related Standard Industrial Classifications
1 — 999	60
1 000 — 2 499	60
2 500 — 4 999	40
5 000 — 9 999	30
10 000 — 29 999	25
30 000 +	20

The final list of communities so identified became the initial list of single-industry communities against which other lists were cross-tabulated.

1971 Census of Manufacturing

The 1971 census of manufacturing provides information regarding only manufacturing and primary production activities. Hence, it does not include transportation, service, merchandising, and public administration activities. It does provide the standard geo-code of the area of the reporting establishment,[17] the name of the establishment and firm, the standard industrial classification code, and the employment size range.[18]

To capture towns dependent on a number of employers in a single activity, all employers in a given standard industrial classification were aggregated and potential single-industry communities identified according to the following definition.[19] The industry had to be the largest in the community, with at least 50 employees, and at least one employment size range larger than the next-largest industry in the community. Here, the 1971 census of manufacturing data, which gave an employment size range rather than a single employment value, was used, and the type of employer(s) in the manufacturing-based communities was established.

The resultant list of communities was cross-tabulated with the list produced from the 1971 census. These communities were then mapped and those within obvious commuting distance of a CMA or obvious alternative sources of employment were, as conceptualized at the outset, excluded from consideration. As previously noted, none were at this stage excluded on the basis of size, except those implicitly eliminated by the initial minimum requirement of 50 employees in a single standard industrial classification as specified in the operational definition.

[17]This standard geo-code area corresponds directly to the standard geo-code area used by the 1971 census.

[18]The employment size ranges are as follows:

a) 0-4	f) 100-199
b) 5-9	g) 200-499
c) 10-19	h) 500-999
d) 20-49	i) 1 000 +
e) 50-99	

[19]Actually several operational definitions were employed to make passes at the data. This definition emerged as the best operational definition that could be produced, given the form of the census-of-manufacturing data.

Private Data Sources

The third principal source was a private system carrying 1974 data. This source provides machine-readable information on a per-establishment or per-branch basis.[20]

The following procedures were carried out using the data source:

a) for each community, employment was summed; then, communities were identified in which the major employer provided at least 20 per cent of total community employment.

b) In each community, employment by all employers in a given standard industrial classification was summed, and communities were identified in which a major standard industrial classification activity[21] comprised at least 20 per cent of total employment.

This list was then cross-tabulated with the list produced on the basis of 1971 data sources. Errors, omissions and changes in economic activity since 1971 were noted and further checked against other sources. In fact, various other data sources were also used. These include trade indices, pulp and paper indices, mining listings, and the community or area profiles assembled by some provinces and by the Department of Manpower and Immigration. These were used as a cross-check, and to identify non-manufacturing and primary industries, especially public administration activities. The lists were then sent to various government departments and departmental field offices for further verification.

The final list constitutes a master list of Canadian single-industry communities and their major economic activity, by province. Periodic updating, on the basis of the final operational definition and current data, can enable the inclusion of new single-industry communities and exclusion of those whose economic base has since become diversified.[22]

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[20]This source is a vast data system, including more than 400 000 Canadian establishments. Among other information, the data for each branch of a particular firm include the name and location; employment at that location; and the (U.S.) standard industrial classification designation of the establishment's six major standard industrial classification activities in declining order of sales importance (these activity specifications are essentially proxies for commodities or services produced at the establishment).

[21]For a community to qualify as a single-industry community, the actual concentration of employment had to be considerably more than 20 per cent of total employment, but the 20 per cent level facilitated cross-referencing with the 1971 listings in the event of a structural change in a community's economic base.

[22]Several communities (such as Chapleau, Ontario) included on the list are becoming increasingly diversified and are strong candidates for exclusion in future.

CREATION OF THE MULTIVARIATE
DATA BASE

Once the master list was drawn up, extensive data on each community was collected — primarily from the 1971 census — and fed into the computer for analysis. The list of available data is given in Appendix B.[23] The Social Science Research Library (SSRL) system, developed by the Department of National Health and Welfare, has been the principal data repository and vehicle for analysis used in this study.

The existing data base may be easily extended to other communities or to other data or update (time series) tables for currently-identified communities. In addition, a second single-industry community data base giving employers and employer-specific information has been created at the Department of Regional Economic Expansion.[24] A similar data base could be developed using the area profiles of the Department of Manpower and Immigration, once they become available in machine-readable form.[25]

The data base is designed as a time series and will identify changes in the economic activity of each community. That is, the data base will identify possible additions to or deletions from the master list. It will also identify changes in employment and a number of other employer-specific economic variables for use in conjunction with an early warning system and could aid in considerations of alternative development strategies for communities identified by a warning system.

Finally, to facilitate the comparison of single-industry communities with the norm for all communities of similar size in the same province or region, a data base on non-metropolitan communities was created. This data base contains 1971 census data on some 95 variables, and is directly comparable with the community definition as used in the construction of the single-industry community data base.

[23]Data for single-industry communities identified later in the task force's work has not yet been mounted on the SSRL system. However, to the extent that a community is not an unincorporated subdivision not sharing its dominant economic base, data for additions in the final list of communities may be readily added to the existing data base.

[24]At present, this data base is available only to the Department of Regional Economic Expansion due to confidentiality requirements.

[25]The area profiles contain information in addition to that on employment by establishment. For example, data are available on the starting date, identity of corporate headquarters and parent corporation, corporate sales.

3. DESCRIPTION AND CLASSIFICATION
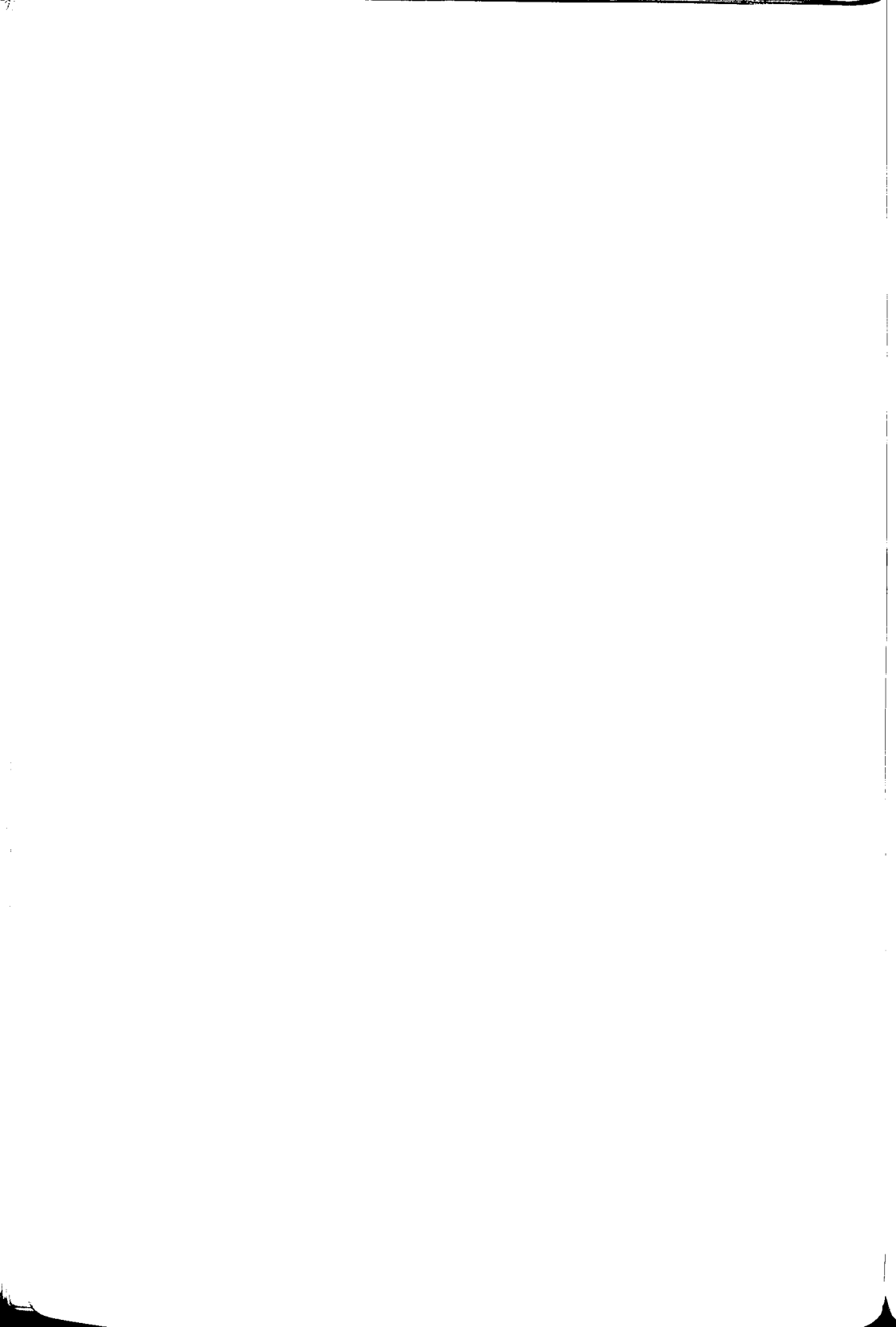
SELECTION OF FACTOR ANALYSIS

An essential element of research on single-industry communities is the identification of community types sharing a common set of attributes and problems and possibly influenced by similar policies. To date, research of the type reviewed in Section 1 has been qualitative and hence single-industry communities have not been conclusively described and classified. On the one hand, these studies have fostered the belief that such communities share a common set of attributes and problems that differentiate them from other, more diversified, urban settlements. On the other hand, the communities are classified into types based, for example, on developmental stage or economic base. While such classifications are useful, the groups they define are not necessarily similar in any way but in their history or economic activity.

Quantitative procedures were used to provide a multivariate description and classification of single-industry communities, to identify the primary characteristics in which they differ, and to establish whether the communities fall into meaningful and well-defined groups. In choosing factor analytic procedures, we have followed a well-established method for classifying urban settlements.[26]

Our intent was, first, to distill from a wide range of variables the major characteristic that distinguishes one single-industry community from another; and second, to classify the communities themselves on the basis of their similarity on these variables. Because of technical difficulties and lack of time, we have not completed the classification of communities, but we have established the procedure and analysed the initial results.

At the outset, 80 variables representing a wide range

[26]Brian J. L. Berry, ed., *City Classification Handbook: Methods and Applications* (New York: John Wiley & Sons Inc., 1972)

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of factors likely to differentiate between single-industry communities were selected from the available data for use in the analysis. Most are derived from the 1971 census and include descriptions of the demographic profile, employment and occupational structure, education, income, housing, and community infrastructure. Economic dependence and isolation — two of the best known features of single-industry communities — are respectively represented by the standard industrial classification of the predominant activity, and a distance and isolation measure. Limitations of the computer program prevented the classification of all identified communities in a single run. Thus, the analysis is based on several runs involving single-industry communities from one province or, at most, two adjacent provinces, and a cross-national stratified random sample of 10 per cent or 62 communities.

This part of the research was completed within a very short time and produced considerable information. In addition, we encountered a number of technical problems that led us to reduce the number of variables to 64 for later parts of the analyses. The results are preliminary and selective, but nonetheless provide useful insight into the nature of single-industry communities in Canada.

NATURE OF VARIATION

A factor analysis of 80 variables for the cross-national sample of 62 communities indicates the main ways in which these communities vary. Of 16 factors or dimensions of variation derived,[27] 10 factors — explaining 86 per cent of the variation — were interpreted in terms of the variables which mathematically define them (Table 3). The results suggest several main conclusions:
1. The unusually large number of factors indicates that single-industry communities have many different characteristics. The derivation of so many factors may be partly explained by the large number of variables used in the analysis. However, as many factors clearly resemble aspects of single-industry communities described in the qualitative studies, there is good reason to believe that the communities do actually vary noticeably in a large number of characteristics. An obvious

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[27]The 16 factors are those with eigenvalues greater than unity. The 10 interpreted factors have values equal to or greater than 3.0.

implication is that it may be difficult to classify single-industry communities into neat, homogeneous groups on a multivariate basis.

2. Interpretation of the individual factors listed in Table 4 supports some of the existing beliefs about single-industry communities while negating others. One assumption which is not supported is the belief that communities engaged in the same economic activity are necessarily alike. If this were so, such economic indicators as the standard industrial classification, income and occupational categories, would be highly correlated with other variables and would define one of the first factors. Instead, the standard industrial classification has a correlation greater than 0.5 with only one other variable (an occupational category) and it partly defines only a very minor factor (factor 10 explaining three per cent of the variation).

The major sources of variation between single-industry communities are given in factors one and two. These relate to the dominant age and family structure in the community and, to a lesser extent, to the age of the community (Table 3, Fig. 16). Factor one, explaining 24 per cent of the variation, contrasts two extreme types of communities. The first type has a relatively high proportion of old people (men and women over 55 years), families with no children, and old dwellings. The second type of community is dominated by family-type households, by children and by one-income families. Neither type fits the description usually given to single-industry communities.

However, between these two extremes is the relatively new community dominated by persons in the working-age group (25 to 34 years) and lacking both the very young and the old. This type of community is well-defined by factor two and is quite obviously that described in the literature. Variables defining this factor are men and women 25 to 34 years old, high mobility, migrants, ethnic differences, mobile homes, and dwellings built in the last decade. While considerable attention has been given to the characteristics and problems of this type of community, much less is known about single-industry communities characterized by young families, or, conversely, by old people and hence greater attention could be given to these in future research or policy formulation.

Factor three confirms a source of variation already well recognized. Communities in which there is a commitment to home ownership contrast with those having a high proportion of rented dwellings and apartments. Understandably, the latter is also characterized by higher proportions of men in the working-age group (25 to 34 years) and by a higher male participation rate.

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TABLE 3

DIMENSIONS OF VARIATION BETWEEN 62 SINGLE-INDUSTRY COMMUNITIES INCLUDED IN THE NATIONAL SAMPLE

	Groupings of Variables				
Dimension	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Positive Correlation[1]	Families with 0 children as ratio of all families	Mobile homes as ratio of all dwellings	Rented dwellings as ratio of all dwellings	Males in teaching and related occupations as ratio of all males in labour force	Single females age 15 + as ratio of all females
	Males age 65 + as ratio of all males	Pop. with Indian or Inuit mother tongue as ratio of all pop.	Apartments as ratio of all dwellings	Pop. with Ukranian mother tongue as ratio of all pop.	Pop. with French mother tongue as ratio of all pop.
	Females aged 55-64 as ratio of all females	Dwellings built 1966-71 as ratio of all dwellings	Average rent	Males in managerial administration and related occupations as ratio of all males in labour force	Single males age 15 + as ratio of all males

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Females aged 65 + as ratio of all females	Males in techno- logy, social, art & religious occupa- tions as ratio of all males in labour force	Male participa- tion rate	Females age 15-24 as ratio of all females
Males age 55-64 as ratio of all males	Migrants from outside Canada, age 5 + as ratio of all pop. age 5 +	Males age 35-44 as ratio of all males	Males age 15-24 as ratio of all males
	Pop. age 5 + with 3 + inter-muni- cipal moves as ratio of all pop. age 5 +		
	Migrants from different prov- ince, age 5 + as ratio of pop. age 5 +		
	Pop. with Italian mother tongue as ratio of all pop.		

		Groupings of Variables			
Dimension	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Negative Correlation[1]	Females age 4-15 as ratio of all females	Single females age 15 + as ratio of all females	Owned dwellings as ratio of all dwellings	Family households as ratio of all households	Pop. with English mother tongue as ratio of all pop.
	Males age 5-14 as ratio of all males		Males in other primary occupations as ratio of all males in labour force		
	Average no. persons per room				
	Average persons per household Family households as ratio of all households				
	One-income families as ratio of all families Pop. dependency ratio				
	Males age <5 as ratio of all males				

		Groupings of Variables			
Dimension	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Positive Correlation[1]	Pop. 1961	Owner-occupied, single family, non-farm dwellings as ratio of all dwellings	Males in machining, fabricating assembly, repair occupations as ratio of all males in labour force	Pop. with a university degree as ratio of all pop.	Males in service occupations as ratio of all males in labour force
	Pop. 1951	Dwellings with no automobile as ratio of all dwellings		Pop. age 5 with 3 inter-municipal moves as ratio of all pop. age 5	Standard industrial code of industrial base
	Pop. 1971	Pop. with less than grade 5 as ratio of all pop.		Female participation rate	
				Migrants from same province age 5 as ratio of all pop. age 5	
				Average household income	
Negative Correlation[1]		Isolation index			Males in sales occupations as ratio of all males in labour force

[1]Variables loaded on factors have a correlation equal to or greater than 0.5 and are listed in descending order of magnitude.

TABLE 4

SPECIAL AREAS (EXCLUDING RENFREW, ONTARIO) RECEIVING INFRASTRUCTURE INVESTMENT FROM THE DEPARTMENT OF REGIONAL ECONOMIC EXPANSION, BY PROVINCE, 1969-73

Newfoundland

St. John's Special Area
St. John's East
St. John's West
Mount Pearl
Virginia Park
Waterford River Valley
Holyrood
Quidi Vidi
Carbonear
Seal Cove, Conception Bay
Memorial University

Corner Brook Special Area
Corner Brook and Industrial Park
Corner Brook East

Happy Valley Special Area
Happy Valley

Grand Falls-Gander Special Area
Lewisporte
Bishop's Falls
Gander
Grand Falls
Botwood
Peter's Brook

Burin Special Area
St. Lawrence
Creston
Grand Bank
Marystown
Burin

Stephenville Special Area
Stephenville Area 13
Stephenville

Come-By-Chance Special Area
Arnold's Cove

Hawke Bay-Port au Choix Special Area
Hawke Bay
Port au Choix
Port Saunders

Nova Scotia

Halifax-Dartmouth Special Area
Mountain
Withrod
Kline Heights
Dartmouth
Eastern Passage/Cole Harbour
Gravity
Fairview
Lower Sackville
North & South Bedford
Cole Harbour
South Armdale
Lacewood – Clayton Park
Lakeside – Timberlea
Findlay – Hawthorne
Mill Cove
Goresbook
Bloomfield
Foresyth
Brookhouse
Harbour View

Strait of Canso Special Area
Mulgrave
Point Tupper

New Brunswick

Saint-John Special Area
Monowagonish
Forest Hills
Millidgeville

Moncton Special Area
Forest Glen
Riverview Heights

Quebec

Sept-Iles/Port-Cartier Special Area
Sept-Iles
Port-Cartier

Trois-Rivières Special Area
Bécancour
Trois-Rivières
Cap-de-la-Madeleine
Pointe du Lac

Lac Saint-Jean Special Area
Industrial Park at Alma

Quebec Special Area
St-Féréol-les-Neiges
Saint-David-de-l'Auberivière Industrial Park
St-Augustin Industrial Park
Charlesbourg
Giffard
St-Henri-de-Lévis Industrial Park
Lauzon
Lévis
Hare Point
Beauport
Québec
Ste-Foy
Mont-Ste-Anne

New Montreal International Airport Special Area
St-Eustache
Deux-Montagnes
Lachute
St-Jérôme
Sainte-Thérèse

Manitoba

The Pas Special Area

Saskatchewan

Meadow Lake Special Area

FIGURE 16

VARIATION ON FACTORS ONE AND TWO
BETWEEN 62 SINGLE-INDUSTRY
COMMUNITIES INCLUDED IN THE
NATIONAL SAMPLE
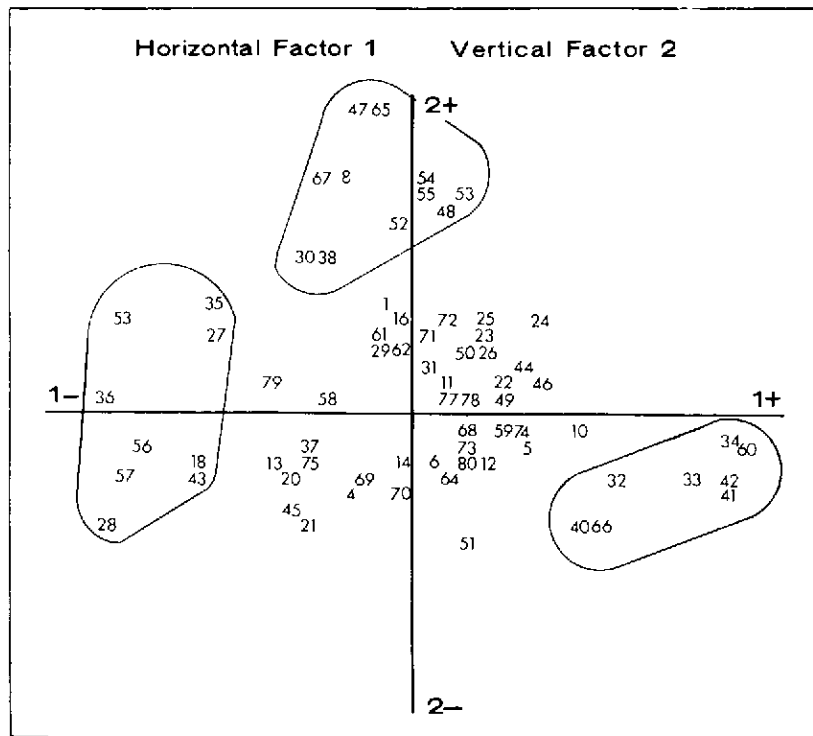
Factor 1

High Positive

60 Families with 0 children
34 Males age 65 +
41 Females age 55-64
42 Females age 65 +
33 Males age 45-54
66 Dwellings built before 1946
40 Females age 45-54   .

High Negative

28 Males age 5-14
36 Females age 5-14
63 Average persons per room
57 Average persons per household
56 Family households
43 Pop. dependency ratio
18 One-income families
27 Males under 5
35 Females under 5

Factor 2

High Positive

65 Mobile homes
47 Pop. with Indian/Inuit mother tongue
67 Dwellings built in 1966-71
 8 Males in technology, social-related occupations
54 Migrants from outside Canada
55 Pop. with 3 + inter-municipal moves
53 Migrants from a different province
48 Pop. with Italian mother tongue
52 Migrants from the same province
30 Males age 25-34
38 Females age 25-34

Negative

51 Single females

Factor five[28] distinguishes between predominantly French- and English-speaking single-industry towns. In French-speaking communities there is a higher proportion of young single men and women of 15 to 24 years. In another study, a similar difference was found between French- and English-speaking resource communities of more than 30 000 persons.[29]

Factor six distinguishes between communities on the basis of population size but since no other variables load highly on this factor, there is no indication that size is related to other types of differences.

Differences related to degrees of urban influence are more clearly indicated by factor seven, which distinguishes between communities which are isolated or relatively far from a metropolitan area and those that are not. The greater distance is associated with lower education levels, fewer automobiles, water and household facilities, and dwellings without a mortgage. As is described in the literature, one of the most obvious differences between isolated and non-isolated single-industry communities is the availability of urban services. Hence, it is worth noting that while factor seven appears in this quantitative analysis, it is a minor one accounting for only five per cent of the variation, as compared to over 40 per cent ascribed to factors one and two.

Factor nine, like factor two, appears to denote communities with a high proportion of mobile and migrant population. But such communities are associated with a population whose members are relatively well educated and in managerial positions. Family incomes are high as the family unit has access to more than one income; and the female participation rate is high. A mobile managerial class in single-industry communities has been noted in previous studies,[30] but differences in female participation rates and family incomes have not been given much attention.

A main conclusion emerging from this analysis pertains to the relative value of social and economic indicators to research into single-industry communities. Undoubtedly, economic variables — such as those related to the type of activity, income, employment and occupation — are crucial when distinguishing between these communities and more diversified urban centres. Hence, the identification of single-industry communities in Section 2 of this report is based on such variables.

[28]Two factors are not interpreted. Factors four and eight are both defined by specific occupational groups. Unfortunately there are weaknesses in the census data outlined in Appendix C which produced zero values for many communities on these variables. Hence, no credence is given to the interpretation of these factors.

[29]H. J. King, "Cross-Sectional Analysis of Canadian Urban Dimensions: 1951 and 1961", *Canadian Geographer*, x:4, December 1966, 205-224.

[30]Lucas, *Minetown, Milltown, Railtown.*

However, in an analysis of the differences between single-industry communities, economic variables are much less important[31] than are differences related to social structure, age and sex distributions, household and family composition, mobility, migration, ethnic origin, housing, and urban services. It is therefore reasonable to expect that the social problems faced by single-industry communities are specific to the type of community. Consequently, social indicators should be given a major role when identifying problems and developing policies for dealing with troubled communities.

CLASSIFICATION

The communities in each province were classified in a factor analysis which groups the communities according to their similarity or correlation over the 64 variables.[32] The classifications are general purpose and are quite distinct from univariate classifications developed for a specific objective, such as to order the places according to their use of mobile homes or their provision of public sewers.

For each province, the analysis produced three or four major groupings of communities and several minor ones according to the factor or factors they loaded on with a value of at least 0.5. A number of places do not clearly fall into any one group as they have high loadings on two different factors and hence lie between two groups.[33] We anticipated that it would be easy to establish the differences between the groups by

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[31]This conclusion should be tempered by recognition that the economic data in the analysis are not strong elements in the factors. Moreover, such environmental problems as air and water pollution, which would likely correlate with the type of economic activity, were not represented at all.

[32]The analysis described in the subsection "Nature of Variation" does the reverse; it groups variables according to their correlations over the communities.

[33]Communities that fall between two groups suggest that an oblique factor solution would provide a more satisfactory classification than that developed using the varimax rotation. An oblique solution allows the groups to be related rather than forcing them to be completely independent of each other, as they are in this analysis. The discovery that single-industry communities vary over many different characteristics, but fall into only three or four main groups, also suggests the groups may share some features and hence an oblique solution may be more appropriate.

ascertaining which of the 64 variables scored highly on the factors defined by each group of communities.

In fact, technical difficulties in computing the scores prevented this. However, the variables likely to be important can be predicted from those that emerged as important indicators of the variation between single-industry communities. A comparison of the ordering of communities on a given variable with the groupings of communities is an easy check on whether the variable does in fact appear to define any grouping. Very general conclusions are reported on the classification of communities across all provinces, prior to a more detailed examination of those in British Columbia.

It is possible to compare the three or four main groups of communities in each province only in a very limited sense. For example, all provinces have one group that contains all or many of the much larger places, particularly census agglomerations. Only one province (apart from Saskatchewan with its agricultural centres) has a group of communities based on the same economic activity. Apart from these similarities, the nature and relative importance of the groupings vary from province to province. For example, in British Columbia larger places make up the second major group and explain 21 per cent of the variation in the factor analysis classification. In most provinces, the larger places appear in only the third or fourth grouping; in Newfoundland they form the seventh, a very minor group explaining only 2.7 per cent of the variation. Interprovincial variation is also seen in the group differences associated with demographic and family characteristics. The latter were earlier identified as major determinants of differences between single-industry communities, one of the variations being places with a relatively high proportion of old people and families with no children.[34] This description clearly fits one of the major groups of communities in Nova Scotia, New Brunswick, Alberta, and British Columbia, but does not define a group in the remaining provinces.

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[34] Refer to the variables with high positive loadings in factor one, Fig. 16 and Table 5.

SINGLE-INDUSTRY COMMUNITIES
IN BRITISH COLUMBIA

Ninety-nine single-industry communities have been identified in British Columbia. When communities that do not constitute a full census subdivision are excluded, there are 77. Of these, we have analysed 59, for which data were available in machine-readable form. Most of the communities are dependent on pulp and paper, sawmill or logging operations, with a smaller number dependent on mining, smelting, defence, public administration, electric power, or tourism (Table 1).

The communities are first described in terms of a range of demographic, social, economic and location variables (Table 5). They are compared briefly, and only by way of example, to the national sample of single-industry communities and to all non-metropolitan urban centres. They are then described by group, as ascertained through factor analysis classification.

As the non-metropolitan urban system in British Columbia is dominated by single-industry communities, the values in columns 1 and 2 of Table 3 do not differ significantly. By comparison, at the national level, single-industry communities differ markedly from all non-metropolitan urban centres on such characteristics as male participation rates,[35] education, household amenities, and persons per room (columns 3 and 4, Table 3). While single-industry communities are generally quite different from other urban centres, they are not all alike.

In particular, single-industry communities in British Columbia do not fit the average mould. In some respects, they exaggerate the national trend. Hence, such communities, nationally, have some economic advantage over other centres in terms of higher average household incomes ($7 000 to $6 912); in British Columbia the average household income in single-industry communities is $9 282.[36] Similarly, the tendency to have fewer single women, fewer families and fewer children than other urban places in Canada, is even more obvious in British Columbia communities than in the national sample.

In other respects, and most notably in housing, the single-industry communities in British Columbia are quite different

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[35] On the basis of the figures in Table 5, the male participation rates are unexpectedly lower in single-industry communities than elsewhere. The implications of this should be researched.

[36] This advantage may not exist in real terms if the emotional and financial costs of isolation, poorer services and possible future insecurity of single-industry communities are taken into account.

TABLE 5

COMPARISON BETWEEN SINGLE-INDUSTRY COMMUNITIES AND NON-METROPOLITAN URBAN PLACES (BRITISH COLUMBIA AND CANADA), BY SELECTED VARIABLES (MEAN), 1971

Variables[1]	B.C. Single-Ind. Comm.[2]	B.C. Non-Metro[3]	National Sample[4]	Canadian Non-Metro
Male participation rate	.82	.89	.70	.82
Male unemployment rate	.06	.07	.08	.08
Average household income	$9 282	$9 081	$7 000	$6 912
Pop. with less than grade 5 as ratio of all pop.	.04	.03	.12	.07
Pop. with a university degree	.03	.02	.02	.02
Males age <5 years as ratio of all males	.09	.09	.10	.09
Males age 5-14	.21	.22	.24	.23
Males age 25-34	.15	.13	.11	.11
Males age 35-44	.12	.12	.10	.10
Males age 55-64	.08	.08	.08	.09
Males age 65 +	.06	.08	.08	.10
Single females age 15 + as ratio of total females	.11	.13	.16	.17
Migrants from a different province age 5 + as ratio of pop. age 5 +	.09	.10	.04	.03
Migrants from outside Canada age 5 + as ratio of pop. age 5 +	.05	.04	.01	.01
Pop. age 5 + with 3 + inter-municipal moves as ratio of all pop. age 5 +	.15	.12	.06	.05

Variables[1]	B.C. Single-Ind. Comm.[2]	B.C. Non-Metro[3]	National Sample[4]	Canadian Non-Metro
Family households as ratio of all households	.84	.81	.86	.85
Families with 0 children as ratio of all families	.29	.31	.26	.30
Dwellings with no piped water as ratio of all dwellings	.04	.02	.16	.10
Dwellings with no toilet as ratio of all dwellings	.05	.02	.21	.14
Average number of persons per room	.70	.66	.76	.68
Apartments as ratio of all dwellings	.09	.13	.08	.10
Mobile homes as ratio of all dwellings	.10	.06	.03	.02
Dwellings built before 1946 as ratio of all dwellings	.27	.28	.46	.53
Owned dwellings as ratio of all dwellings	.65	.66	.78	.78
Rented dwellings as ratio of all dwellings	.34	.33	.22	.22
Dwellings linked to public sewers as ratio of all dwellings	.41	.66	.25	.38
Dwellings with no automobile as ratio of all dwellings	.17	.17	.28	.23
Distance in miles to nearest metropolitan area	208	n.a.	127	n.a.
Population	5 611	6 522	3 927	2 992

[1]The variables represent a range of those used in the factor analysis and of those for which comparative data are available.

[2]These values are based on 59 single-industry communities in British Columbia.

[3]The means are based on the 79 non-metropolitan urban places with a population over 500. Many are single-industry communities.

[4]Includes 62 communities representing a 10 per cent stratified random sample of all single-industry communities for which data are available in machine-readable form.

from their national counterparts. On a Canada-wide basis, people
in single-industry towns rent, own and live in apartments or
mobile homes in about the same proportions as people do
elsewhere, but, as expected, they have fewer amenities, such as
piped water, toilets and sewer links. In contrast, a much greater
proportion of the dwellings in similar communities in British
Columbia are mobile homes, 10 per cent as against three per cent
nationally; and a greater proportion of the dwellings have toilets,
piped water and access to public sewers. An obvious conclusion
is that the housing problems of single-industry communities in
Canada do not fit into one simple pattern but must be treated
as distinct, at least at the provincial level, and the same is
probably true of many other factors.

The classification of communities within British Co-
lumbia underscores the nature of differences that can occur
within any one province. Three main groups and a number of
lesser ones are identified by factor analysis of 64 variables
(Table 6). Groups one and three are strongly contrasted on
variables pertaining to age of housing and population. The first
group is characterized by long-established communities and low
proportions of the mobile and migrant populations. A relatively
high proportion of the inhabitants is over 55 years of age, there
are fewer families with children, more owned dwellings, and
more dwellings built before 1946. The houses are less crowded
but paradoxically they are among those communities that are
most poorly serviced by such amenities as public sewers. Nine
of the 16 communities in the first group lack this service
completely. Virtually all the smallest single-industry communities,

TABLE 6

FACTOR ANALYSIS CLASSIFICATION
OF COMMUNITIES IN BRITISH COLUMBIA,
1971

Factors	Groups	% of variance
1	1	38.1
2	2	21.0
3	3	15.6
4	4	10.1
5	5	6.5
6	6	5.7
7	7	3.0
Total		100.0

especially those with fewer than 1 000 persons, and those with the lowest household incomes, are in group one.

By contrast, group three has, on average, among the highest income, reflecting a higher proportion in the working age groups. There are far fewer old people, more families with children, and a much greater migrant representation. More people in this group rent than do those in group one, but housing is much newer and better serviced. Over 60 per cent of the housing stock in group-three communities is less than 10 years old. The communities in group two generally lie between these two extremes as far as population and housing variables are concerned. Three communities are closer to group three; and the remainder to the older, smaller communities of group one. Group two contains those communities with the largest total population in 1971, and many that are near to Vancouver. However, some of the subdivisions in this group comprise a number of much smaller places and hence resemble[37] the smaller communities of group one.

The common characteristics binding together the communities in the minor groups four, five, six and seven are difficult to ascertain without computing factor scores. Groups four, five and six seem to reflect the young character of group-three communities but with some extreme variation. The communities of group four have a high proportion of Inuit, Indians and immigrants.

CONCLUSIONS

While based on a preliminary analysis, the results indicate the nature and extent of some of the differences between single-industry communities in Canada and in British Columbia in particular. One major result is a statistical confirmation that economic indicators, although useful in defining which communities are dependent on a single industry, tell little about differences in their makeup and problems and hence the nature of policies which might improve the quality of life in them. A variety of social indicators, particularly demographic, housing and infrastructure variables, are much more significant in this respect and should be considered when policies are being formulated.

[37]This resemblance is manifest in positive loadings of up to 0.4 on factor one for places in group two.

4. A FRAMEWORK FOR ANALYSIS

When a single-industry community faces an economic crisis, governments and industry are faced with difficult decisions about whether to take special measures. This section is an attempt to provide a conceptual framework to help make an assessment of the costs and benefits associated with alternative courses of action. Alternatives for government action range from explicit non-intervention (where total reliance is placed on automatic, statutory programs such as unemployment insurance) to direct investment in the industrial plant. This paper does not examine the merits of such alternatives since the most appropriate policy response will depend on the specific circumstances.

The general framework described in this section provides broad guidelines for a reasonably comprehensive and consistent examination and quantification of the effects of each alternative. The analytic framework has three components (Fig. 17). The first, private accounts, describes a system for measuring the costs or benefits of each alternative to an individual (or family). In other words, this component records all anticipated dollar flows to and from each affected individual in the community. The purpose is to devise indicators of personal well-being, from a purely financial perspective, under each of the proposed alternatives.

The second component, economic accounts, outlines a method for assessing the purely economic costs and benefits associated with each policy alternative discounted to a common period and summed to provide an estimate of the net present value of that alternative.

The third component, budgetary accounts, provides a system for quantifying the demands of each alternative on a government's budget, the federal budget being used for illustrative purposes.

The identified variables of each set of accounts can be quantified in dollar and aggregative terms, and the output from

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FIGURE 17

THE ACCOUNTING FRAMEWORK

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              ┌─────────────┐
              │  Accounting │
              │  Framework  │
              └─────────────┘
            ╱        │        ╲
          ╱          │          ╲
┌──────────┐  ┌──────────┐  ┌──────────┐
│ Private  │  │ Economic │  │Budgetary │
│ Accounts │  │ Accounts │  │ Accounts │
└──────────┘  └──────────┘  └──────────┘
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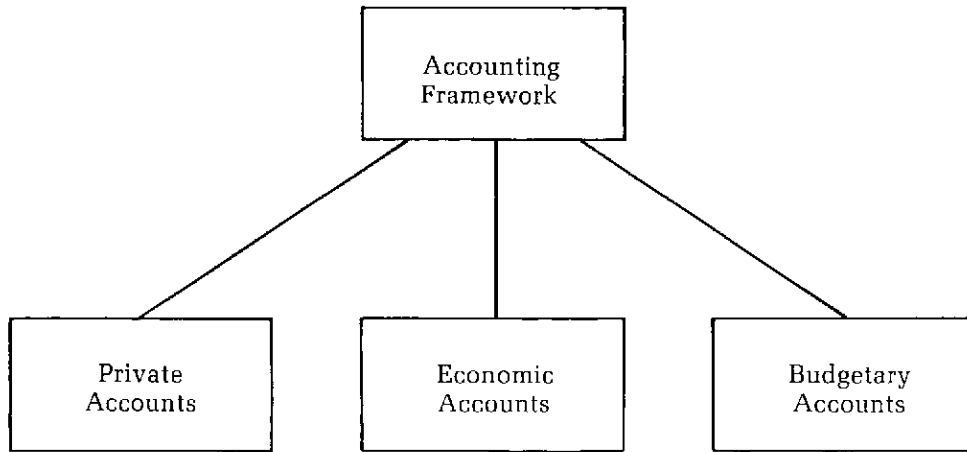
each component will therefore be a small number of numerical indicators. It should be noted that the process of quantifying many variables will greatly depend on a community's unique characteristics. A multitude of social concerns (e.g. the effect of each alternative on education and on the availability and quality of health services) are excluded from this section as many of them are not readily quantifiable and most are not aggregative. But the fact that many social aspects are neither measurable nor commensurable does not diminish their importance in the decision-making process and they could be included in the total assessment package.

The output from the analytic framework and the assessment of social aspects can be visualized as a matrix of indicators set in four concern categories (Table 7). Three of these (personal financial indicators, economic indicators and social indicators) measure the effectiveness of each policy alternative, the fourth (budget indicators) provides information on a major government constraint. It is likely that data limitations will rarely permit the matrix to be completely filled in. However, arraying obtainable information in this way will help define the trade-offs made in attaining governmental objectives.

PRIVATE ACCOUNTS

The private accounts measure the distributional effects of proposed alternatives. Ideally, private costs and benefits should be recorded for every individual directly or indirectly affected by a shutdown and, consequently, by implementation of a proposed alternative. In some instances, however, data limitations may restrict analysis to those directly affected by the plant or industry shutdown.

A schematic representation of the private accounts is given in Figure 18. The private costs and benefits are classified as the income loss from unemployment (PC 1), income loss from alternative employment (PC 2), and the loss of wealth (PC 3).

In the following descriptive outline, it is assumed, for simplicity, that the plant shutdown and all employment losses occurred simultaneously and present values are calculated as of a single date. The actual date chosen does not alter the

TABLE 7
MATRIX OF INDICATORS SET IN FOUR "CONCERN" CATEGORIES

Policy Alternative	Personal Financial Indicators	Economic Indicators	Social Indicators	Budget Indicators
	. . .	. . .	. . .	
Non-Intervention				
Alternative A				
Alternative B				
Alternative C				
⋮				

results, and can be selected to maximize computational simplicity. However, a consistent approach is necessary to ensure that the variables are comparable.

Income Loss from Unemployment

Loss of income from unemployment is calculated as the value of the loss in earned disposable income, less the value of offsetting transfer payments to the individual by virtue of unemployment. Transfer payments include unemployment insurance benefits and welfare (or social assistance) payments.

Should unemployment persist, over a two-year period for instance, it would be necessary to discount these values to estimate, in constant dollar terms, the individual cost of unemployment.

Income Loss from Alternative Employment

An individual's earnings from a new job may be lower than earnings from a previous job. Some of the reasons are:
a) loss of seniority;
b) decay of general skills during the period of unemployment, or loss of specific job skills;
c) change to an occupation in which the individual's skills are no longer needed; and
d) change in attitude leading to decreased productivity.

For each individual, the magnitude of financial loss is determined by the relative levels of disposable wage income in the two employment positions, and the period in which he would have remained in the former job had it been available.

Finally, it should be recognized that the new job might result in earnings higher than previously possible. This could be due, for instance, to an increase in the number of hours worked each week, or weeks worked each year; or to a higher wage rate in a new occupation. In this event, the PC 2 value would be negative. That is, the individual would experience a financial gain in his new job.

Loss of Wealth

A number of factors may enter into the calculation of wealth loss, but three of the more important are loss of

FIGURE 18
THE PRIVATE ACCOUNTS
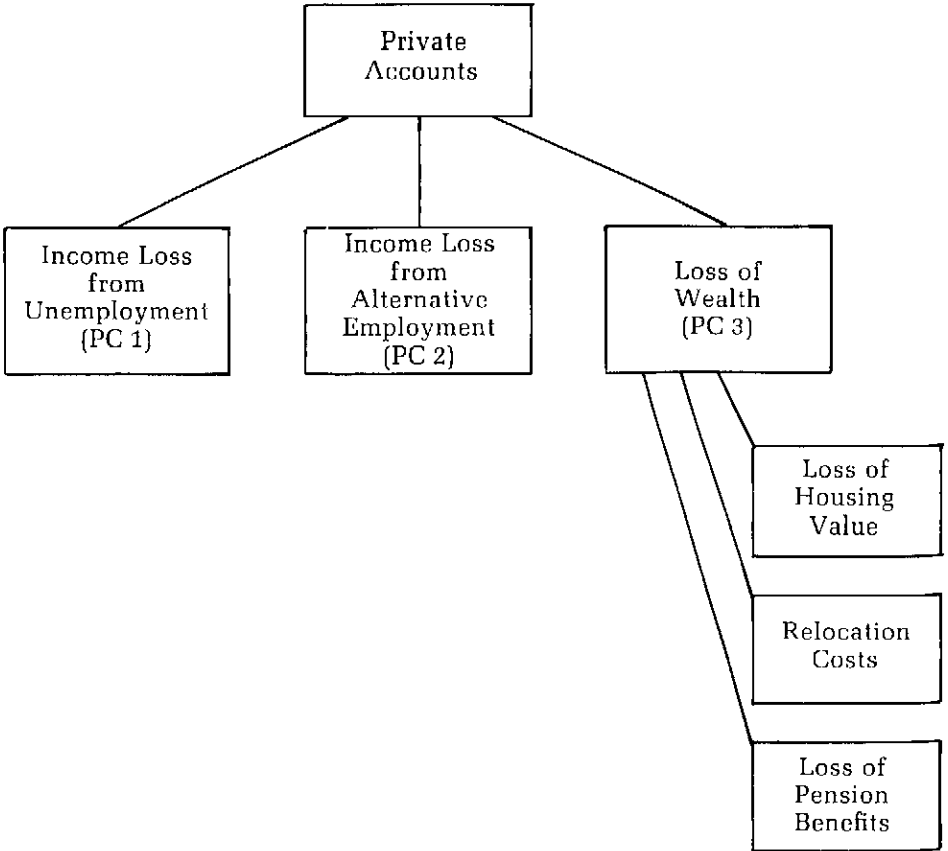
housing value, relocation costs, and loss of pension benefits. For this framework, the total loss is simply the sum of these components.

Loss of Housing Value

The shutdown of the major firm or industry almost always results in a decline in value of fixed physical assets. This devaluation can present exceptional difficulties to individuals whose only major form of savings has been home ownership and may determine whether many individuals decide to relocate.

The loss to each home-owner can be determined by estimating the market value of the home that would have prevailed had there been no disruption, and deducting from that figure the post-disruption market value.

Relocation Costs

For those individuals forced to relocate, there are obvious relocation costs, for example for travel, moving personal belongings and temporary accommodation. These costs, however, may not be borne entirely by the individual. Government transfer programs, such as the Canada Manpower Mobility Program, help individuals defray their expenses; or a firm may subsidize relocation costs if the employees are to be re-employed at another branch plant.

Therefore, the cost to each individual will be the total cost of relocation less transfer subsidies.

Loss of Pension Benefits

The calculation of an individual's loss of pension benefits is likely different for every community, because the private pension schemes vary from one firm to another, and even from one branch plant to another.

In general, two types of loss may be incurred. Past contributions may be lost if the pension fund is controlled and administered by the firm rather than by a trust company or chartered bank. Loss may also be incurred if the pension plan is not entirely portable from one employer to another. Whether this is so will depend on the nature of the two companies involved.

Summary

For each individual (p) the total private cost is the sum of the values for the three major configurations that make

up the private accounts. That is, $PC^p = PC1^p + PC2^p + PC3^p$. When policy alternatives are being assessed, the total private cost can indicate the financial impact of each alternative. Decision-makers can also use the individual values to help them choose an alternative best suited to the specific needs of a community.

ECONOMIC ACCOUNTS

Policy alternatives must be assessed from a purely economic standpoint and each must be weighed against the governmental objective of promoting economic efficiency and growth. The economic framework is outlined in Figure 19. The output from this set of accounts is a single estimate of the net present value (or the cost/benefit ratio) for each alternative considered.[38]

In an economic assessment, it is necessary to measure costs and benefits of proposed policy against some norm or baseline situation. In most cost/benefit analyses, it can usually be assumed that if a policy was not implemented, events would continue in the future as they had in the past. In other words, the norm is assumed to be an extension of the status quo.

However, for a single-industry community facing the threat of a plant closure, the baseline case of non-intervention will not lead to a simple extension of the status quo. There will be considerable out-migration and relocation. Consequently, the first step is to map out, in as much detail as possible, the impact of the baseline case (plant closure with no government intervention) on out-migration and relocation. This pattern can then be translated into social infrastructure, private capital and manpower requirements at the relocation point or points and the value of labour production estimated. Once these steps are completed, the costs and benefits of each proposed alternative are measured against those of the non-intervention alternative.

Within the analytical framework, any alternative resulting in a negative estimate of net present value (or a cost/benefit ratio greater than unity) would be considered inferior to the baseline solution. Conversely, any alternative resulting in a

[38] In fact, the output could be a series of estimates of net present value or cost/benefit ratio for each alternative. There would be more than one estimate for each alternative if a sensitivity analysis were conducted.

FIGURE 19
THE ECONOMIC ACCOUNTS
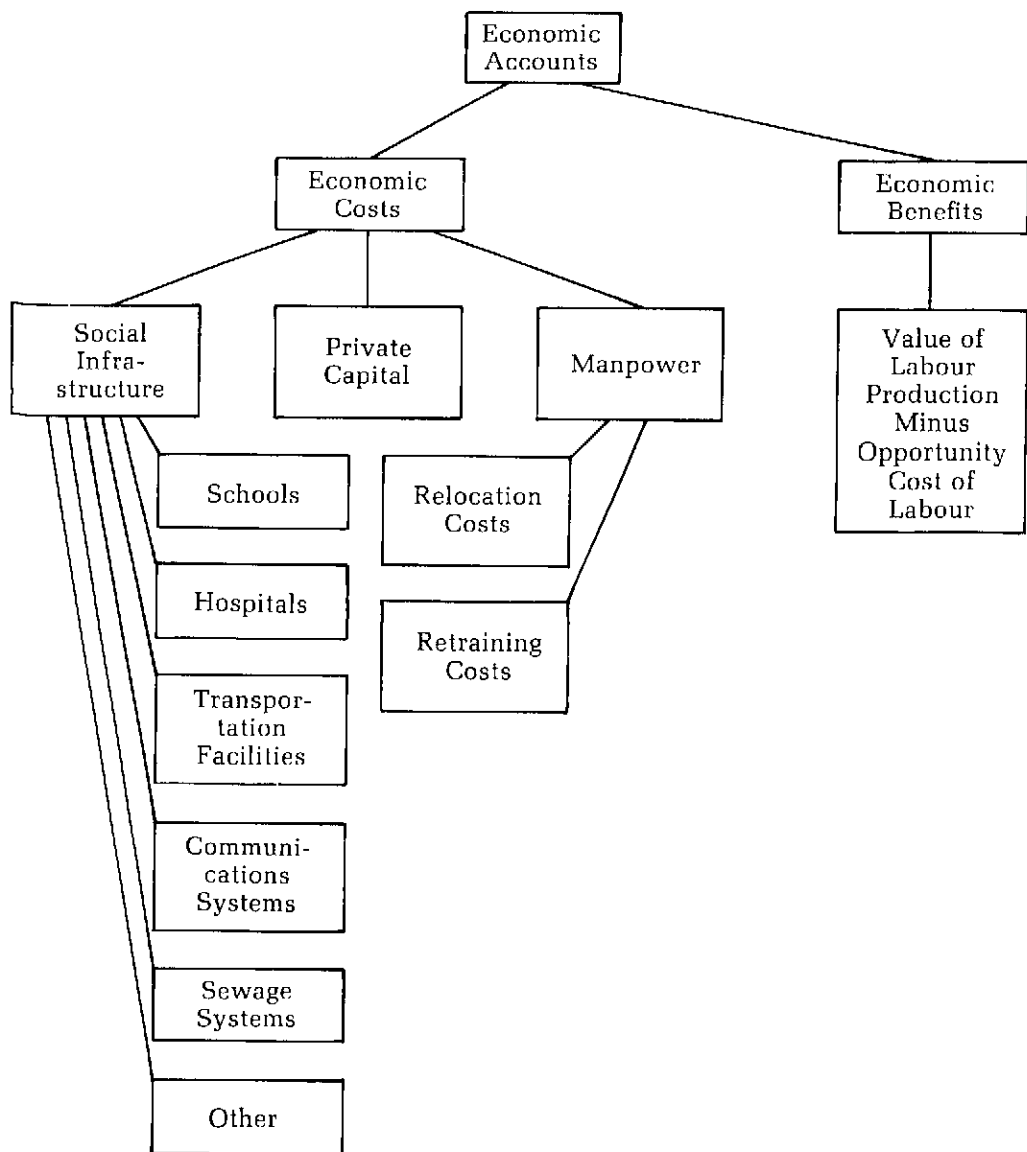
positive estimate of net present value (or a cost/benefit ratio less than unity) would be considered superior to the baseline alternative.

Economic Costs

The total estimated economic cost of each policy alternative is the sum of the values for three major cost groups: social infrastructure, private capital, and manpower.

Social Infrastructure

In the absence of intervention by governments and the private sector, the demise of a community's major economic activity would likely result in some definable pattern of relocation of all or some of the residents. The numbers of families relocated, and the distribution of the relocations are the major factors determining how much new social overhead capital will be needed at the relocation point or points. The main problem in assigning cost estimates to these factors is that most social infrastructure are, in part at least, public goods. In the case of a pure public good there exists, by definition, unlimited excess capacity for consumption.[39] That is, additional quantities of the public good may be consumed at no additional cost.

In this analysis, the categories of social infrastructure are schools, hospitals, transportation facilities, communications systems, sewage systems, and an unspecified category (which might include, for instance, recreational facilities).[40] These goods and services are, obviously, not pure public goods. But neither are they pure private goods, for example schools and transportation facilities can and do have excess capacity.

A rule of thumb when evaluating these costs is as follows. If the relocating families are evenly distributed to a large number of communities, then the best approximation of the cost of providing facilities is zero. If, on the other hand, the relocating families are concentrated in a small number of communities, then the best approximation of the cost of providing facilities is the

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[39] A pure public good is one for which additional consumption by one or more individuals has no effect on the consumption levels of all other individuals.

[40] The analysis intentionally avoids consideration of whether or not the community is a regional service centre for smaller neighbouring communities. In all policy alternatives resulting in massive out-migration, smaller communities may be deprived of the services and infrastructure formerly available in the endangered community. In such an event, governments may wish to consider providing these from another centre in the same region. This would have to be included in the economic cost calculations, and in the budget calculations.

average cost per family in the province of relocation as a whole.[41] The logic here is simply that marginal increases in demand for social infrastructure can be absorbed in excess capacity, whereas larger increases in demand necessitate additional facilities.[42]

To arrive at the total economic cost of social infrastructure for each policy alternative, estimate the total costs that would be incurred and deduct the costs that would have been incurred in the baseline situation.

It should be noted that the timing of the relocations might considerably affect cost estimates. For example, governments might consider a policy alternative that actively encourages, through relocation subsidies, a rapid out-migration of the population. Even if this alternative resulted in the same number and distribution of relocations as the baseline solution, the economic costs of social infrastructure would be higher because they would be realized sooner than would otherwise have been the case. The magnitude of this difference would depend upon the discount rate used. A sensitivity analysis (that is, varying the discount rate) might radically change the results.

Private Capital

Unlike social overhead capital, private capital is rarely characterized by excess capacity. With vacancy rates at extremely low levels across Canada, it can be assumed that the transfer of demand for housing from the single-industry to the relocation community will generate pressures on the latter's housing stock, which can be relieved only by the construction of additonal houses.

To the extent that each policy alternative has different effects on family relocations, it will also have different effects on the required generation of new housing supplies. For each relocating family, the economic cost is the market value of a house comparable in quality, (e.g. size of house, age, and lot size) with

[41] Average cost refers to the average capital cost, but does not include operating costs, which would have been incurred in any event. For example, the average cost of providing hospital facilities should not include the cost of a nurse's services.

[42] The adoption of an operational criterion would require further research, but might be along the following lines. If the number of relocating families increases the number of families in the relocation community by less than 1.0 per cent, use zero cost; if it exceeds 1.0 per cent, use the average provincial cost. This critical value could also be scaled (for example, zero cost for population changes of 0.0 to 4.0 per cent, half cost for population changes of 4.1 to 6.0 per cent, and so on). Finally, the critical values may be different for each type of social infrastructure, and for different size ranges of relocation communities. There is no a priori reason to believe that schools will have the same excess capacity as hospitals, or that Arnprior will have the same proportion of excess capacity as Ottawa.

that previously occupied. These housing values should be assessed at the time of relocation, then discounted to present dollar terms and summed to provide an estimate of the total economic cost of housing supplies in the relocation communities.[43]

To arrive at the total private capital costs of each policy alternative, estimate the costs that would be incurred in each, and deduct the costs that would have arisen in the baseline situation.

This procedure can be used for all relocating individuals whether they owned or rented their dwellings. Private ownership affects the calculation of private financial cost, but does not enter into the calculation of social economic costs.

Manpower

The two main considerations in assessing the economic costs associated with manpower are relocation costs and retraining costs. The individual costs of each are summed to arrive at an estimate of total manpower costs. (The opportunity cost of labour is included in the calculation of benefits.)

Relocation Costs. The economic cost of family relocations is defined as the actual cost of transporting the families and their personal possessions. Hence the total costs will vary directly with the number of families relocated, and the distance to be travelled.

The elements included in this calculation are the same as those included in the private accounts. However, the economic cost is the sum of individual financial costs, government costs, and the firm's costs. And finally, the relocation costs attributable to the alternative are those incurred over and above the costs in the baseline alternative.

Retraining Costs. When a policy alternative includes the provision of a manpower training program, the costs and benefits over and above those that would have occurred in the baseline solution, can also be included. The method of calculating the benefit of training (an increase in the individual's expected earnings) and the opportunity cost of labour during the training period, is shown in the subsection "Economic Benefits". However, training programs also have such costs as teachers' salaries, classroom space and materials. If the program is provided by a government department

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[43]Note that in this estimate the appropriate variable is the value of housing in the relocation community similar in quality to the housing abandoned in the single-industry community, not the value of housing actually occupied in the relocation community. This latter variable would include a measure of change in the individual's consumption pattern. That is, choice of a "better" or a "worse" house than the one previously occupied would result in more or fewer consumption benefits from the new dwelling. What is relevant to this analysis is the economic cost to society of having to duplicate non-portable capital (i.e. housing).

or agency, it can provide cost estimates. If the program is provided by a private agency, the cost can be estimated by summing tuition fees and cost of materials.

Economic Benefits

The economic benefit of each policy alternative is the value of labour's production less the opportunity cost of labour. The latter is defined as the value of labour's production in its most likely alternative use.

In this analysis, the opportunity cost of labour has been identified as the value of labour output in the baseline alternative. That is, if governments institute a policy other than that of non-intervention, the pattern of relocations and re-employment would presumably be different from the pattern that would otherwise have prevailed. One of the costs to society of implementing this policy is the value of labour production which would have accrued to society in the non-intervention alternative.

The simplest and most widely-used proxy for the economic value of labour production is labour's market wage. Hence, for each individual, it is necessary to construct a profile of expected earnings, in the baseline situation, from the date of plant closure to anticipated date of retirement. For each individual, the gross earned income in each period is then discounted to the present, and summed to provide an estimate of the opportunity cost of the individual's labour. An estimate of the total opportunity cost of labour is obtained simply by summing the opportunity costs of all the individuals.

The estimate of the gross economic benefit of each policy alternative is calculated in a similar fashion. For each individual it is necessary to construct a new profile of expected earnings, based on the relocation and re-employment pattern of the policy being considered, from the date of plant closure to the anticipated date of retirement. Again, the expected gross earned income in each period is discounted to the present and summed. And finally, an estimate of the total gross economic benefit could be obtained by summing the present value of each individual's gross earned income stream.

In summary, the economic benefit of each policy alternative is equal to the value of labour production (the gross economic benefit) less the value of labour production in the baseline solution (the opportunity cost). This approach could serve as a satisfactory measure of benefits, with one notable exception.

When the policy alternative concerns subsidy of a major firm or industry, the cost of production is likely to exceed the value of production. Indeed, this fact probably led to the plant (or industry) shutdown. In this instance, labour's gross wage income would not be a satisfactory proxy of the social benefit of labour production. The gross benefit estimate could be revised to reflect this difference.

The simplest way to account for this discrepancy is first to calculate the present value of the future earnings stream of all individuals, on the assumption that they will remain in their usual occupations in the single-industry community, then to subtract from this figure the present value of all future subsidies to the firm. This calculation will accurately reflect the difference between the value and the cost of production as long as the subsidy level was the lowest possible at which the firm could maintain normal operations. In the short run (that is, before the firm invests in new capital equipment), this subsidy would be set to cover the deficit between the costs and the value of production. However, as the firm invests in new capital to replace depreciating capital, it must be guaranteed the same average rate of return on this investment as it might expect to receive elsewhere in the industry. In the long run, then, the value of the subsidy should equal the operating deficit plus the opportunity cost of capital.

Net Present Value

The net present value of the policy alternative is simply the present value of benefits less the present value of costs. However, for each alternative it is desirable to conduct a sensitivity analysis. The sensitivity analysis can encompass both variations in the discount rate and in some of the key parameters (e.g. the cost of providing additional social infrastructure in the relocation community). Therefore, the final output from the economic accounts will be a range of estimates of net present value, rather than a single estimate.

THE BUDGETARY ACCOUNTS

An exemplary accounting of budget costs for each policy alternative is outlined in Figure 20. The first column, existing budgetary flows, measures the level of government expenditure, on discretionary and non-discretionary programs, in the single-industry community before its disruption. This figure is a necessary element in calculating additional funds required, in the next and successive years, to implement the selected policy alternative.

The second column measures the budgetary cost of implementing a proposed policy alternative. The first part of the column, non-discretionary budgetary flows, measures the cost to governments of automatic stabilization and adjustment mechanisms that might be activated if policy alternatives (including the baseline solution) were implemented. Most of these mechanisms are income-support and employment-assistance programs.

The second part, discretionary budgetary flows, measures the budget needed to invoke non-automatic programs under each policy alternative. Such programs include employee-employer counselling services, industrial incentive grants and subsidies to industries. Each alternative will require a different configuration of programs and policies, except for the non-intervention alternative which will, of course, have no entries in this area.

The range of federal programs that might be applied to single-industry communities is inadequate to deal with their problems. The programs do not cover all industry sectors; they can not be put into action as quickly as may be necessary; and the most suitable program or combination of programs can not always be selected and applied promptly. To help single-industry communities in disruption, it may be necessary to change the administrative processes.

FIGURE 20
THE BUDGETARY ACCOUNTS