AN INTERLAKE DEVELOPMENT PLAN - OBSERVATION ON SOCIO-ECONOMIC INDICATORS PRIOR TO AND AFTER IMPLEMENTATION

by

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ABSTRACT

The aim of this research is to make observations on social and economic indicators before and after implementation of the Interlake Development Plan in Manitoba.

A study made by Lowry Nelson in 1964 in which he identified the basic social and economic problems of the Interlake Region was used as a source for facts showing the conditions in the region before the plan was implemented.

This study examines a period from 1961 to 1971 and endeavors to determine the results of the implementation of the plan by comparing a number of social and economic indices identified by Lowry Nelson, and updating them from more recent records.

Comparisons of these indices were made in the 20 census divisions and nine subdivisions of Division 12, three subdivisions of Division 9 and two subdivisions of Division 5; as well as to the Province of Manitoba generally. The results showed that Division 12, representing the upper and main portion of the Interlake region had a low standing, being the most deprived division at the beginning of the period under study. For this reason this study had tended to examine the results in Division 12 with greater interest. At the end of the study period Division 12 had an improved absolute and relative standing in the majority of the social and economic indicators examined.

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CHAPTER I

INTRODUCTION

1.0 Perspectives

Throughout Canadian history, the rate of economic development has varied from region to region. During the early years of Confederation governments passed legislation promoting economic and social expansion. An historical example was legislation providing for the building of the Canadian Pacific Railway to hasten the settlement of the west and encourage Manitoba, the North-west Territories and British Columbia to enter Confederation. This legislation was a direct parliamentary response to a problem within a region of the country, and not a comprehensive regional and rural development plan.

During the past fifteen years the Federal Government, in conjunction with the provinces, has endeavored to balance economic development in all regions of Canada. Policies and programs have been initiated at all levels of government in an effort to achieve this objective. In 1963, the Area Development Act (ADA) was introduced to encourage industrial development in designated regions of persistent high unemployment. The 1963 budget also provided tax incentives to encourage regional industrial growth. In 1966 the Agricultural and Rural Development Act (ARDA) was amended, creating the Fund for Rural Economic Development, 1966 (FRED), and the Small Farm Development Program, 1972 (SFDP). The ARDA amendment extended the coverage of the Act from agricultural regions to all rural regions.

During the late fifties and early sixties the Manitoba Interlake Region was identified as an area qualifying for regional development. A comprehensive report identifying the Interlake as a problem area was a study completed by Lowry Nelson: Area Development in the Interlake: Problems and Proposals, (1964). Nelson compared the Interlake with other regions in Manitoba. The Interlake ranked in the lowest quartile of the twenty census divisions when agricultural production, income, population migration and standard of living were compared. In May 1966, the Provincial and Federal Governments agreed upon a cost-sharing program covering a rural development plan for the Manitoba Interlake area. FRED, through the Interlake Development Agreement, 1967 (IDA) provided financial and policy programing assistance to the Interlake people. A total of $85,085,000 was allocated to the FRED plan over the ten year period 1967 - 1977, to the expiry of the agreement in March 1977.

Today regional disparities continue to be an implicit if not explicit concern of governments. It is necessary to determine if a plan, such as the one implemented in the Interlake, may help other depressed regions gripped by high unemployment, out-migration and other social afflictions.

It is desirable to evaluate the results of the Interlake experiment to determine whether the plan produces the results expected of it and whether it can be used successfully in other regions of the country. An update of the 1964 Lowry Nelson study would determine if the IDA was successful in alleviating the social and economic problems within the Interlake region.

1.1 Problem and Its Setting

1.1.1. Statement of the Problem

Using census data from 1961, Lowry Nelson produced a comprehensive study of the Interlake region. His study showed that the regions in Census Divisions 12, 9 and two sub-divisions in 5, were problem areas, (Nelson, L. 1964). In these regions there was an inadequate resource base, agricultural productivity was poor, and there were severe climatic factors affecting agricultural production. In addition, the Indian and Metis population which made up a large segment of Census Division 12 were both culturally and economically underdeveloped, (Nelson, L. 1964).

These findings prompted the Manitoba Government to set up a ten-year program, from 1967 to March, 1977, to improve conditions in the Interlake region and bring it to an economic level equal to the other regions in Manitoba. The program has been in effect for ten years, and although some improvements have been reported, no clearcut statement has been made indicating whether the Interlake region remains a problem area.

1.1.2. Objective of Study

The aim of this study was to observe whether the Interlake region remained a problem area despite the introduction of the FRED program. The goals of the study can therefore be delineated as follows:

1. To update the Lowry Nelson study using information from Statistics Canada as well as information from the Federal and Provincial Departments of Agriculture.

Updating the study is essential to show the condition of the Interlake in 1961 as compared to its condition in 1971, and in 1976. This would give some statistical indication as to whether there were improvements in the area since the implementation of the FRED program.

2. To determine whether the changes observed in the previous objective (#1) are absolute or relative changes. A comparison of Census Divisions 12, 9 and 5 of the Interlake would be made with Census Divisions outside of the Interlake, allowing for any economic differences between the region to be analyzed as to an absolute or relative change. Where absolute change represents the difference of the base line data from the past-test data within a region, and where relative change represents the difference from base line data to post-test data compared or ranked with other regions within the province.

1.2 Delimitations of the Study

This study did not evaluate the rate of dependency, fertility or the influence of religion, ethnicity or education on population changes, as did the Lowry Nelson study.

Socio-economic changes that had occurred within the study area after 1971 (with the exception of population changes) were not examined in this study. Available non census data on post 1971 indicators were divided into regions which were not compatible with the 1961 base line

data. Any statistical comparisons of post 1971 data and base line 1961 data would be invalid. Census data from 1961 and 1971 were statistically valid. At the time of writing this report, the available 1976 census data for Manitoba was restricted to population counts.

1.3 Research Objectives and Source of Data

1. a. Objective 1: To gather information on the Interlake region pertaining to an update of the Lowry Nelson study.

   b. Required Data: Listing from Census Canada, from the population index and the agricultural index. All the information gathered was listed in tables and charts.

2. a. Objective 2: Physical assessment of the Interlake.

   b. Required Data: Topographical data concerning soil type and general topography of the area; hydrological data pertaining to precipitation; climatological data such as temperature profile and frost-free days; land use related to amount of pasture land, farming, wasteland, summerfallow, woodland, forest and grassland; transportation data which showed the condition of access roads, the type of all-weather roads subject to spring flooding.

   This data was obtained from various sources such as the Economic Atlas of Manitoba, government reports and private surveys.

   c. Analysis: The data provided the physical and geographical context.

3. a. Objective 3: Updating the Lowry Nelson Study.

   b. Required Data: Information obtained from Canada Census and the Department of Agriculture which was collated into tables and figures.

   c. Analysis: Economic and social development was ranked to determine the relative position of the Interlake in comparison to other census divisions within the province.

4. a. Objective 4: Was to compare a pre-plan study, which was the basis of the formulation of the Interlake Plan, to a similar study after the plan had been in operation.

   b. Required Data: Lowry Nelson's study and the researcher's findings.

   c. Analysis: This was an evaluation exercise which decribed the differences between the findings in the two studies. A comparison of census divisions 12, 9 and 5 of the Interlake was made with census divisions outside of the Interlake, allowing for any economic differences between the region to be analyzed as to an absolute or relative change. Examination of the conclusions of the studies; observations were made as to whether the region had improved economically and socially in the last decade.

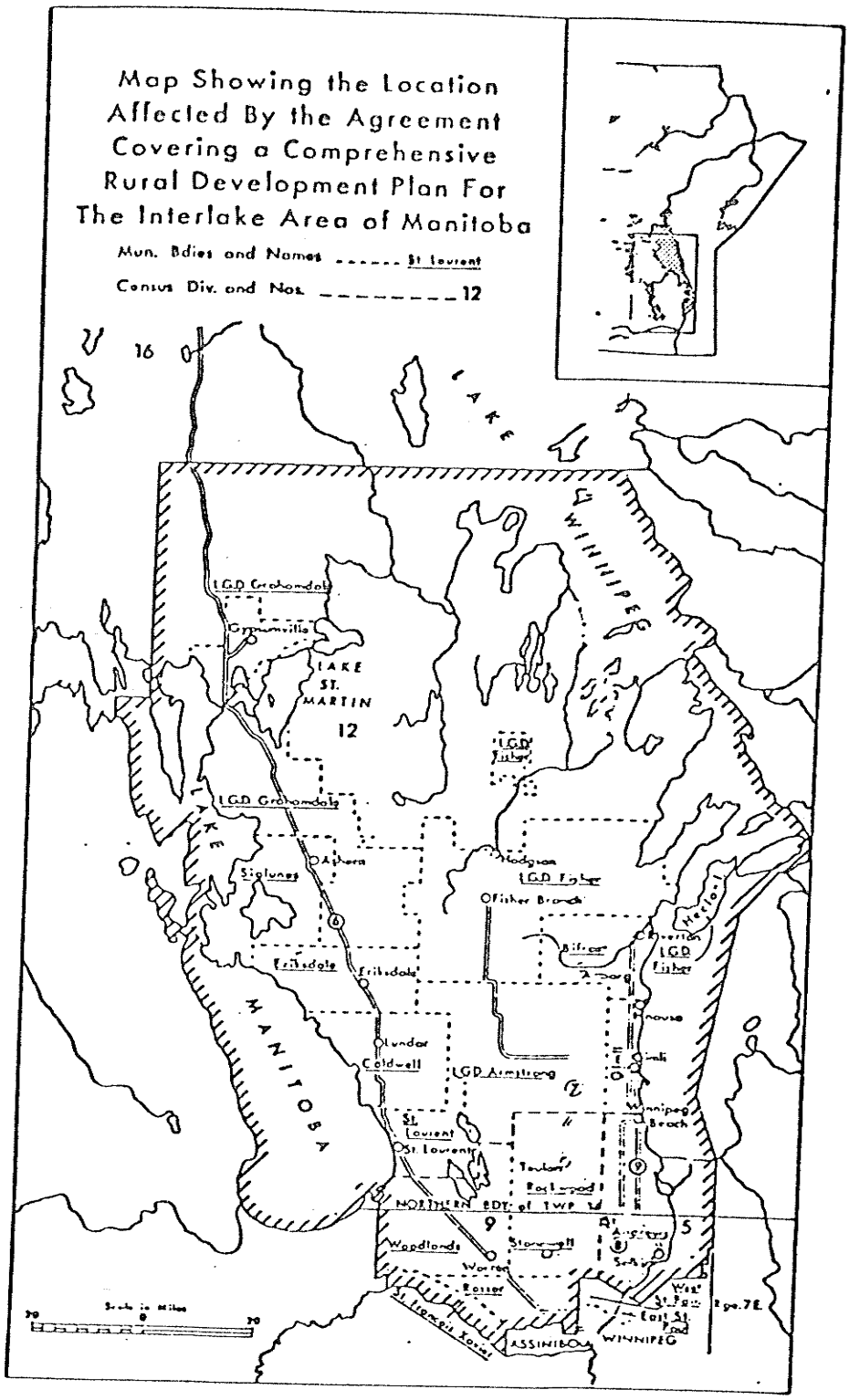
CHAPTER 2

RESEARCH METHODOLOGY

Primary and secondary data were used to generate information for this research. Primary data were obtained from 1961, 1971 and 1976 Census information of Manitoba, 1961 and 1971 Agricultural Indexes and quantitative data generated through statistical analysis. The secondary data consisted of hydrological, geological, demographical and topographical surveys of the Interlake. These studies, completed within the last 16 years, were sponsored by a number of government agencies.

2.0 Study Area

Map 1 shows the geographic boundaries of the Interlake area. The area is bounded by latitude 52^{o} 10^{o} N in the north, the southern boundaries of Census Division #9, and part of Census Division #5, including the municipalities of St. Andrews and parts of St. Clement, and Lake Winnipeg on the east and Lake Manitoba and Lake Winnipegosis on the west. The region includes most of Lake Manitoba and a large portion of Lake Winnipeg. The Interlake area composed the study group (Table 1 and Appendix A) and the remaining divisions and sub-divisions composed the control group (Map 2). Division 16, consisting of Northern Manitoba and Division 20, consisting primarily of Metropolitan Winnipeg were not included in much of the analysis of the agricultural data, as these two divisions were non-agricultural in nature, in contrast to the Interlake region.



MAP 1

INTERLAKE AREA

TABLE 1

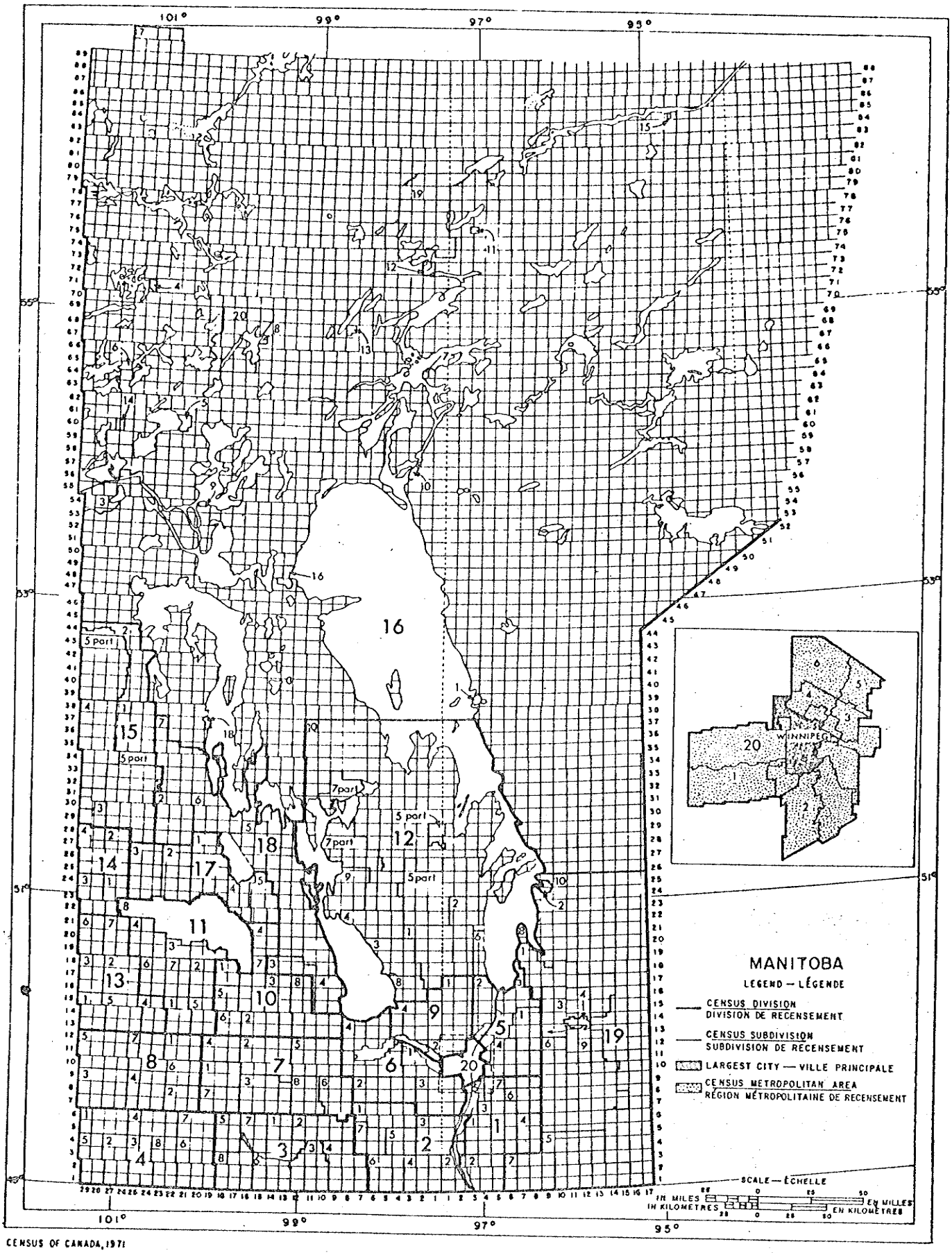
The Interlake Region of Manitoba by

Census Division and Subdivision

1961, 1971, 1976

Division No. 12	Division No. 9
Armstrong	Rockwood
Bifrost	Rosser Woodlands
Coldwell	
Erichsdale	
Fisher	
Gimli	
Grahamdale	Division No. 5
St. Laurent	St. Andrews
Siglumes	St. Clements

Source: Statistics Canada, 1961, 1971, 1976.



MAP 2

Manitoba Study Area

Interlake census division and subdivision boundaries remained consistent from 1961 to 1971. Divisions 16, 19 and 20 had internal subdivision changes which therefore do not affect the degree of compatibility of the 1961 and 1971 census data. In the 1976 census, the Manitoba census boundaries were reorganized and 23 census divisions were created as opposed to the 20 census divisions in 1961 and 1971. Many division and subdivision boundaries were altered. However the 1976 Interlake census structure remained the same as the 1961 and 1971 census boundaries which allowed for statistical cross comparisons of the respective unaltered subdivisions.

2.1 Research Design

A pre test-post test control group design was used in this study. The experimental group consisted of the census divisions and subdivisions which composed the Interlake region of Manitoba. The control groups composed the remaining census divisions in Manitoba. The experimental group was analyzed, subject to the independent variable (FRED regional development program). The control group was isolated from all experimental variables and was evaluated prior to and at the end of the research. By scientific definition if the experimental and control groups are identically matched to each other the experiment approaches an optimal situation. In reality, the Interlake region was not identically matched to any of the other regions of Manitoba, nor have all the variables that have influenced the socio-economic development of the Interlake region been isolated from the other census divisions in Manitoba, (control group). Intervening variables have influenced the

socio-economic development (or lack of) of all Manitoba. Thus total isolation, for experimental purposes, from these intervening variables is impossible. It therefore becomes impossible to determine the 'exact' impact that the independent variable had on the dependent variable. The purpose of the pre test-post test control group design used in this research was to determine if changes in the Interlake region were of an absolute or relative dimension in respect to other census divisions in the province.

The configuration of the control group pre test-post test experimental design used in this study was as follows:

$$O_1 \quad x \quad O_2$$

$$O_3 \quad - \quad O_4$$

Where:

- O_1 and O_2 are the two evaluations of the experimental group, before and after its exposure to the independent variable X.
- O_3 and O_4 are the evaluations of the control group(s).
- The - indicates the absence of the independent variable.

The most comprehensive base line data available for the experimental and control groups was that of the 1961 Census of Canada. The 1966 and 1976 census were less comprehensive, with smaller sample sizes and fewer social-cultural-economic questions. At the time of writing this report, the 1976 census data available by division and subdivision for Manitoba was restricted to population counts. In order to maintain compatibility with the 1961 census data (same sampling procedures and same group boundaries) 1971 census data was primarily used in this research.

2.2 Data Processing and Analysis

The data were studied with univariate statistical procedures. Percentage frequencies and changes over the study period were calculated for the various variables and either or both the percentage frequency and/or the change were ranked in order of magnitude. Detailed frequency bar charts and tables were constructed in the analysis of the data.

All dollar figures that were reported in this study were in real dollar terms for the year in which they were reported. Inflation rates for the study period (1961-1971) varied according to consumer commodity price indexes for Winnipeg. However, based on all items, a commodity purchased in 1961 at a value of $1.00 would require $1.286 to purchase the same commodity in 1971. A factor of .7776 may have been used to discount 1971 dollars to 1961 dollars. An example would be where $1.00 in 1971 equals:

$ 1971		Discount Factor		$ 1961
1.00	X	.776	=	.7776

Discounting was not used in this research for two reasons. The first being that the 1961 and 1971 census data were categorized by income groups in real dollars for the respective year reported. A discounting of the 1971 income groups would have unpredictably altered the number of individuals within the respective category. The second reason was that it was assumed that the rate of inflation was consistent across all sectors of the province. As a result, the nondiscounting of 1971 real dollar figures showed the absolute dollar differences in the positive direction. The relative changes (rankings) were not affected by nondiscounting of the 1971 real dollar values.

CHAPTER 3

LITERATURE REVIEW

3.0 Introduction - Concepts of Regional Development

Gertler (1969) outlines the various components of the concept of regional development in Canada:

> As an economic concept it is concerned with the problem of disparities in income, employment, welfare and rates of growth among regions. As a concept in geography it deals with the spatial structure of a country as expressed in the distribution of people. Economic activities and communities, and with the flows within and between regions. As an environmental concept, regional development is concerned with releasing the potentials of the natural and man-made environment for the enhancement of the quality of life. Viewed as a political concept, it has two related preoccupations: (i) the easing of tensions between have and have-not regions within a country; and (ii) the fostering of local participation in the process of decision-making related to both the development and environmental aspects of each region, (pg. 45).

The concepts of regional development outlined above are closely interrelated. Although not specifically mentioned by Gertler, the social concept of regional development was subsumed by economic and political components. The social concept of regional development is concerned with promoting community, development through education, training and social service programs. The social concept is a crucial variable in the analysis of regional development.

There are other concepts of regional development. However, the concepts outlined above were central to the development of this practicum.

3.1 The ARDA Legislation

On January 25, 1961 Bill C-77 the Agricultural Rehabilitation and Development Act (ARDA) was introduced in the House of Commons. Bill C-77 contained four provisions:

1. The Minister of Agriculture was authorized to enter into agreements with any province or agency thereof. Agreements could be undertaken in areas of alternative land use of soil and water conservation, and in development of income and employment opportunities in rural agricultural areas.

2. The federal government authorized payments to the provinces for projects arising out of the agreements undertaken by a province or agency on its behalf. The exact nature of the cost sharing agreement was not outlined.

3. The Minister of Agriculture could authorize research programs to study the more effective use and economic development of rural agricultural areas.

4. The Bill authorized the establishment of advisory committees and the appointment of members with respect to the other provisions of the Bill, (Agricultural Rehabilitation and Development Act, 1961).

In 1966 Bill C-152 amended the 1961 ARDA legislation to: extend the Act to include all rural areas of Canada, as opposed to agricultural areas; change the name of the act to correspond to the above

amendment; provide greater administrative flexibility by modifying the term "Minister" in the Act; and to remunerate advisory committees. The most important amendment was the first, which widened the scope of the ARDA Act to include agricultural areas and other rural regions.

The federal legislation specified that projects would be undertaken at a provincial level. The Federal Government took limited initiatives in the area of research and fund allocation. The majority of the responsibility was assigned to the Provincial Government.

If the ARDA agreement was to be utilized with any effectiveness a limited geographical area would have to be designated. A small geographical region would allow monitoring of the results, and programs that were successful could be expanded, and unsuccessful programs eliminated. The region under study was the Interlake area of Manitoba.

3.2 Choosing the Interlake

Several social and economic studies were conducted making recommendations for the development of the Interlake region. Hedlin and Menzies in their report Economic Survey of the Interlake Region of Manitoba (March, 1964) stated that

> Any economic survey of the Interlake will reveal one over-riding fact. Of all the resources of the region, the human resources are the most important, and their potential is perhaps even less developed than the potential of the region's natural resources, (pg. 103).

The study noted that an increasing emphasis was being placed on beef cattle rearing and if the trend continued, possibly 8,000 Interlakers would need alternative employment as the cattle industry would not be able to support all the farmers.

Other industries located in the Interlake were experiencing difficulties. For example, the fishing industry suffered from over-participation and needed reorganizing. Before this could be done there had to be some form of rationalization of the fishing and processing industries which would provide increased productivity and incomes within the industry. The Hedlin and Menzies report recommended an expansion of the forestry and recreation industries, two important assets of the region.

The report discussed the general philosophy of the rehabilitation of the Interlake. "The objective of the economic policy is, simply expressed, to raise the level of productivity and the standard of living of the persons living in the area", (Hedlin and Menzies, 1964, pg. 26). With the goal stated, the means by which to attain the goal became difficult to agree upon. The easiest way of attaining the objective was "by a policy designed to encourage population to move from the area" (pg. 26). The resources of the area would be consolidated in the hands of fewer individuals, resulting in increased capital relative to population. However, if a population redistribution was initiated to attain the objective, the Interlake would become more of a problem area. A population redistribution would result in the disruption of social and cultural patterns, creating initial distress and disorganization. The report states that a shift in the population would intensify urban employment problems and at worst, would have simply shifted families from the Interlake welfare rolls to urban welfare rolls, with the main concentration being in Metropolitan Winnipeg.

The preliminary strategies of the Interlake development plan were to reorganize the potential resource use of the region; to establish

or intensify educational and vocational training programs, to increase investment in the region (private and public); to develop the skills of local residents in the area; and to involve them actively in the whole development process, (Hedlin and Menzies, 1964 and Reid et al, 1966). Given these increased opportunities an outward migration would occur that would increase the migrants' income and the income of those remaining in the agriculture and other primary industries in the area.

Lowry Nelson's study, Rural Development in the Interlake, Problems and Proposals (1964) was the key to any development which was planned for the Interlake. In the study, Nelson (1964) demonstrated that the Interlake was indeed below the social and economic standards of the rest of Manitoba and Canada. Using census data, he showed low incomes prevailing in farming and as well the non-farming sectors. He also showed that there was a high rate of outward migration and much low quality housing, while resources were being misallocated and educational facilities were substandard.

An important aspect of Nelson's report was that, unlike other studies, it was recognized that it was not enough to embark upon a large scale program of improving education and employment without knowing who should be aided and what kind of aid would be most useful. Nelson's study provided the base line data, prior to the intervention of the Interlake Development Plan, on the above key variables. The data was presented in relative terms, showing the exact position of the Interlake region in comparison with other census regions of the Province. In comparison, the Interlake was shown to rank consistently low by all social and economic indicators. The Interlake has a relatively distinct

geographical location, allowing for simpler analysis than would an unbounded area. The Interlake had all the problems found in the rest of the province. The variety and magnitude of problems and its geographic boundry made the Interlake an ideal experimental area for testing the effectiveness of programs and policies designed to alleviate similar problems in other parts of the country. The Interlake was chosen as the area that would receive a comprehensive rural development program.

3.3 The FRED Legislation

On March 18, 1966, Bill C-151, the Fund for Rural Economic Development (FRED) was introduced in the House of Commons. Once passed, the Act authorized the federal government to enter into agreement with the Provinces or Agencies thereof for the joint undertaking of a comprehensive rural development program in a designated rural development area.

FRED was originally allotted a federal expenditure of $50,000,000 which was increased to $300,000,000 in March, 1967. The Act provided for the establishment of an advisory board of not more than ten senior federal officials to make recommendations to the Minister on proposals for comprehensive rural development.

Original ARDA objectives remained unchanged by these amendments. However, FRED defined the nature and application of the programs that were to be undertaken, thus consolidating the original vague ARDA legislation. Second, it was recognized that a necessary aspect of the overall program was local participation. Third, a provision for an integration of programs for solving income and employment problems was made. Finally, FRED specified the terms of federal participation in programs and agreements under ARDA.

The objectives of the 1961 ARDA Legislation were not altered in any important or fundamental way by Bill C-151 nor C-152. In terms of comprehensive rural development programs, FRED was more definitive than the ARDA in connection with the kind and degree of Federal participation and involvement. It is important to mention that the 1966 amendments broadened the scope of ARDA to include all rural areas and not simply agricultural regions.

3.4 The FRED Agreement in Manitoba

On May 16, 1967, the Interlake area of Manitoba was designated as a FRED area. The agreement covering the comprehensive rural development plan for the Interlake made the region eligible for programs, jointly funded by the Federal Government of Canada and the Provincial Government of Manitoba. The agreement permitted a federal expenditure of $49,562,000 and a provincial expenditure of $35,523,000 for a total of $85,085,000 over a ten year period, (Department of Forestry and Rural Development, 1967). The FRED Act committed the two governments to a joint plan of action and administrative arrangements for implementation.

In short, the FRED agreement between the Manitoba and the Federal Governments was designed to give the residents of the Interlake the opportunity to participate fully in the economic life of the nation by means of:

i) extensive public investment in education to provide a higher level of education for the population;

ii) increased training facilities which, together with training allowances and mobility grants, can be used to prepare the employable population in the area for more rewarding opportunities in places of expanding employment;

iii) provision of information by way of counselling to make the residents of the area more aware of the alternative opportunities available to them;

iv) develop the economic potential in the renewable resource sector, including agriculture and fisheries, and the encouragement of secondary industry;

v) development of some of the infrastructures of the area, basically roads, parks and housing, to encourage additional employment opportunities and to raise the standard of living, (Framingham, et al., 1979, pg. IX-X).

3.5 The Evaluation Approach

The general purpose of evaluation is to determine the impact a program had on a region. The purpose of this section is to outline the various types of methods that have been used to evaluate regional resource development policies and to point out their relevance to the analysis of the Interlake FRED plan. Three evaluation approaches shall be outlined: 1) planning, programing and budgeting; 2) benefit cost analysis; and 3) system analysis.

3.5.1 Planning, Programing and Budgeting System (PPB)

PPB was first established in 1961 by the U.S. Department of Defence. The PPB system was devised to provide policy makers with a tool to analytically evaluate existing and proposed programs, and which would incorporate quantitative measurement of performance whenever possible (Schultze, Charles L., 1969). MacMillan (1970, 1974) states that strategic planning is the essential characteristic of PPB.

Schultze (1969) and the State-Local Finances Project (1969) list the objectives of PPB as:

1) Careful identification of objectives and goals in each area of government activity.

2) The formulation of an initial "Program Structure" which describes the workings of the program categories and the activity(ies) that would make up each category.

3) To analyze the output of a given program with reference to its objectives. This analysis relates to the objectives identified in (1) to the program structure categories identified in (2).

4) The formulation of programs and objectives that extend for several years beyond the annual budgetary review.

5) The measurement of total program costs, not just for the short-run (one year) but for several years ahead. This would provide the decision maker with the costs his decisions would entail.

6) A crucial aspect of PPB is the analysis of alternatives to find the most effective means of obtaining basic program objectives, and to achieve the objectives at the least cost.

7) To establish analytic procedures as a systematic aspect of annual budgetary reviews.

MacMillan (1974) states that the above summary of PPB is "consistent with that outlined for the Canada Treasury Board", (pg. 149). MacMillan outlines the budgeting process used by FRED:

> The FRED budgeting process approximates the PPB approach. Attempts were made to formulate objectives, analyze programs in terms of objectives, measure total costs over a 10-year period, and make a periodic review of alternatives over the 10-year planning period. The contract for an independent evaluation with the Department of Agricultural Economics involves the task of establishing procedures of systematic analysis to facilitate the strategic planning process. However, the broad interpretation of PPB implies that the development impacts of all local, provincial, and federal programs be co-ordinated to achieve development objectives. Currently, development planning in the Interlake area is restricted to FRED program categories (pg. 149).

3.5.2 Benefit Cost Analysis (B/C)

Benefit cost analysis was developed in the 1930's. In 1936 the United States Congress passed the U.S. Flood Control Act which required the United States Army Corps of Engineers to project the costs and benefits of projects before they were started.

B/C analysis attempts to evaluate the present value of benefits and costs derived from a project. The ratio of benefits to costs determines the projects economic feasibility. A B/C ration > 1 has a net benefit, a B/C < 1 has a net cost. B/C analysis has limited application to non-economic variables. B/C analysis does not take into consideration income distributions (to whom the benefits occur and to whom the costs occur). Due to the large number of judgmental decisions that must be made in B/C analysis, estimates of the benefits and costs are often subject to large errors or skew, due to political or other considerations of partiality. However, errors in estimations are likely to affect similar projects in equal ways.

The most suitable application for B/C analysis is the ranking of similar projects, for example, the best alternative drainage system - expanding existing roadway ditches or to build a new water diversion system.

3.5.3 Systems Analysis

Whitehead (1967) outlines the general values and specific objectives of systems analysis as:

> A cycle of definition of objectives, design of alternative systems to achieve those objectives, evaluation of their objectives in terms of their effectiveness and costs, a questioning of other assumptions underlying the analysis, the opening of new alternatives, the establishment of new objectives, (pg. 91).

There is a constant analytical interaction between means and objectives, allowing the analysis of each to influence the other, (Schultze, 1968).

B/C analysis, input-output analysis and simulation could be incorporated with systems analysis. Schultze (1968) states that systems analysis can be a complement to and in tension with political dialogue as systems analysis emphasizes resource efficiency and stresses economic opportunity cost. The tension arises because political policy makers have their own set of efficiency and political economic opportunity costs.

Planning, programing and budgeting, benefit/cost analysis and systems analysis have been discussed in relation to government decision making. Each method has relevance to aspects of resource development decision making and each has relative advantages and disadvantages including time and cost associated with each method. In the private sector, effectiveness and performance are measured by profitability. In the public sector, effectiveness and performance often cannot be initially measured because the public sector often undertakes projects where the benefits occur far in the future. A problem arises because often public project benefits cannot be quantitatively or qualitatively measured as easily as profits within the private sector. Governments, therefore often have difficulty in quantifying their achievements. Ideally, evaluations of public programs would measure the value of government services associated with alternative public investments. Certain dimensions of the FRED

Interlake plan made the task of evaluation difficult (MacMillan, J.A. and Nickel, P., 1976) and reduced the plan's effectiveness, these included:

1) The boundaries of the FRED area impose difficulties for planning and evaluation in obtaining comparable census data. Only a portion of the Rural Municipality of St. Clements is included.

2) In implementing the plan, there is no formal means of ensuring the highest feasible local content on projects such as highway construction and industry incentives. Job oriented manpower training is a means of achieving high local labor content.

3) The plan is labelled as comprehensive, but deals with only $5 million of FRED expenditures out of a total annual federal, provincial, and local government expenditure of $47 million in 1968-1969.

4) The $85 million figure of FRED expenditure during 1967-1977 is an overstatement of the net impact of the plan. It is likely that a large portion of the program expenditures on land clearing, drainage, highways, education, and manpower would have occurred without the FRED plan. The programs are also available elsewhere in Manitoba.

5) The target income groups of the plan are not precisely identified. A large proportion of the benefits of all programs are received by high income groups. The distribution of benefits is not consistent with a major concern for low income groups. However, large numbers of low income households are receiving benefits from manpower services and land clearing. The farm development program initiated in 1971 is unique with respect to the specification of clientele targets by income class.

6) Canada Manpower mobility programs (exploratory and relocation assistance) have had low participation. However, a large proportion of manpower service clients expressed a preference for relocation or commuting. There is a need for innovative changes in mobility programs to facilitate out-migration for those wishing to move. For example, the analysis of migration shows that participation in manpower services increases the potential for migration.

7) The federal government was either not aware of agricultural surpluses in 1967 or was willing to overlook the agricultural output implications of public expenditures on drainage, land clearing, and farm management training in favor of improving rural incomes. The federal concern for the national costs of increasing agricultural production resulted in terminating the land clearing program. Under the present conditions of demand for livestock products and livestock production capabilities in the Interlake area, the national costs of increased agricultural production in the Interlake area may be minimal. However, the relevant economic analysis has not been carried out. A long term view is essential.

8) Information in the number of jobs and costs associated with industrial incentives in the Interlake area would permit a comparison of the job and income impacts of industry incentives in comparison with manpower resources and other programs, (pg. 41-42).

3.5.4 Input-Output Models

There are many intervening factors that must be considered when analyzing a development program. Substantial research beyond a cost/benefit analysis of a single project is required. A model was developed (Figure 1) to incorporate the various approaches used in developmental analysis (PPB, B/C analysis and systems analysis, respectfully). The casual flows of the input-output model outlined in Figure 1 can be related to measurements of program performance in areas of concern to decision makers. A quantitative set of measurements and objectives for each plan is required. Alternative assumptions can be programed into the input-output model concerning:

1) Economic growth of the economy outside the Interlake area;

2) The potential for manufacturing and service industries in the area;

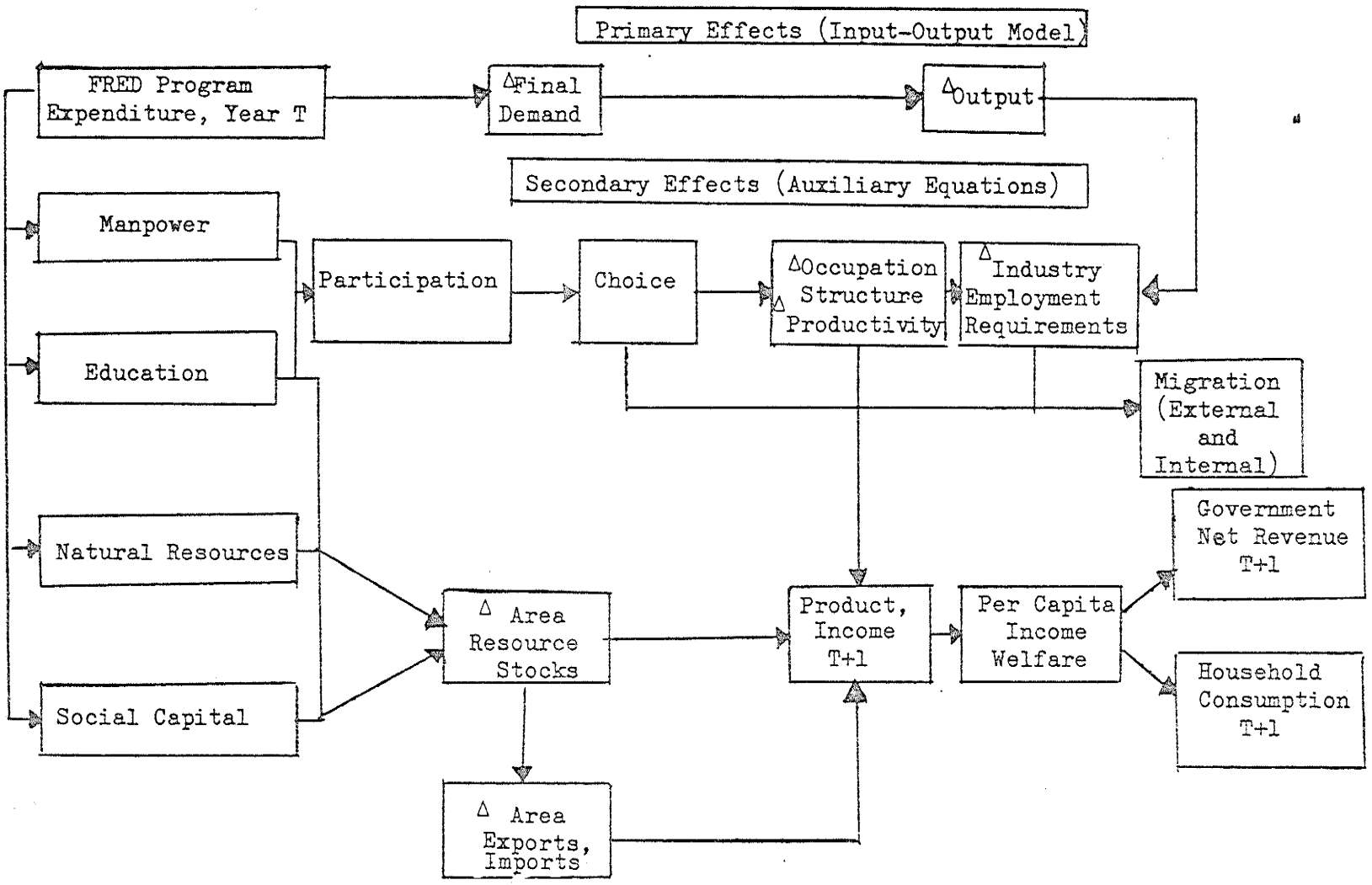


FIGURE 1

IMPACT OF PROGRAM EXPENDITURE ON THE DEVELOPMENT PROCESS

Source: J.R. Barnard, James A. MacMillan, and Wilbur R. Maki, "Evaluation Models for Regional Development Planning," Regional Science Association Papers, 23:117-40, November, 1969.

3) Impacts of technology in agricultural production on the output and labor requirements in agriculture and related service industries;

4) The level of federal and provincial investment through FRED and non-FRED programs;

5) Effectiveness of the programs in reaching willing residents who are potentially employable;

6) Willingness of the area's population to consolidate the large number of small towns, (MacMillan, J.A. et al., 1975, pg. 25).

The input-output model may be designed to evaluate economic linkages occuring in the Interlake.

The evaluation of any one program may not identify all of the economic benefits that accrue to the region. For example, increased exports of a resource (i.e. food) would cause secondary economic and social impacts in the region. People working in the industry may increase purchases from local businesses, creating more jobs, resulting in an inward migration. Primary resources may be purchased by the industry from local farmers, increasing farm income and so on.

MacMillan and Nickel (1976) state that rural centers in the Interlake are socio-economically advanced by:

1) Primary producers' sales and purchases in local towns and villages;

2) The activities of local or provincial governments which provide approximately 25 to 50 percent of jobs and income;

3) Large industry or manufacturing which have had a major impact on local communities (i.e. Seagram's distillery Gimli and rolling mill plant, Selkirk), and were relatively independent of primary producers.

Rural center development in the Interlake was hindered by: (MacMillan and Nickel, 1976)

1) Interlake residents who do a lot of shopping in Winnipeg reduce the volume of retail sale of the Interlake merchants.

2) The fact that Interlake rural centers depend upon primary producers within approximately a 20 mile radius and primary producer members are declining rapidly.

3) DECREASED livestock production in the advent of poor weather and 'abnormally low' livestock prices.

Interlake rural centers are at a disadvantage, relative to Winnipeg, due to increased transportation costs of goods into and out of the centers, volume and lack of financial and technical expertise.

3.6 FRED Evaluation Research Results

The broad goals of the Interlake FRED program were to increase income and employment opportunities and living standards for the residents of the region. Approximately $250,000 over a ten year period, was allocated to the Department of Agricultural Economics at the University of Manitoba, to determine the degree of success in achieving the goals, and to research and analyse the program to determine the plan's economic impact.

MacMillan (1974) used an input-output model to determine the impacts of the various FRED projects in the Interlake. The results showed that (in order of magnitude) the farm management program, followed by the land clearing program, the drainage program and education expenditures had the greatest annual impact on income per unit of government expenditure. More jobs were generated per unit of government expenditure by the land clearing program, than by other programs. The number of jobs generated from the remaining programs, in order of magnitude,

were from the drainage program, the farm management training program and educational expenditures. It should be noted that the study focused on the geographic distribution of the impacts on a single year basis rather than considering the future benefits.

Tung, F.L. et al (1976) stated that, with the FRED resource development program, gross output of agriculture is 33 percent higher than without the FRED program, (Table 2). Similarly agricultural employment has increased 20 percent, farm income 33 percent and total area income by 11 percent. Average income by farm has increased by 40 percent as a direct result of the Interlake FRED program. The study calculated 'real' 1968 dollars to determine the economic impact of the program. The direct economic gains due to FRED in the Interlake area, as presented by Tung, et al (1976) are substantial.

3.6.1 Manpower Services

MacMillan, Bernat and Flagler (March, 1972) in Benefits and Costs of Manpower Services in The Interlake Rural Development Area, state that the manpower services with the greatest economic benefit to clients completing the training were: (in order of magnitude)

i) Farm management training
ii) Training in industry, and
iii) Vocational and special.

Potential employers solicited graduates from the training courses and graduates partaking in mobility and job referral had substantially higher incomes than those without training. Many persons, while in training, obtained employment and dropped the course. The annual income mode of clients in the service categories was below three thousand dollars.

Table 2

Interlake Area 1976 With and Without FRED Resource Development Program Impacts*

	1976 Without FRED	1976 With FRED	Impact	Percent Increase
I Gross Output by Sector	.....(million 1968 dollars).....			
1. Agriculture	59	77	+19	33
2. Manufacturing	31	31	+.1	.3
3. Non-Manufacturing	14	14	+1	0
4. Wholesale	21	24	+4	20
5. Retail Trade	49	53	+4	8
6. Service	11	12	+.5	5
7. Total Gross Output	185	212	+27	15
II Employment	.....('000 Man-Years).....			
1. Agriculture	5.1	6.2	+1.1	20
2. Others	10.3	10.5	+.2	2
3. Total	15.3	16.7	+1.3	8
III Land In Production	.....(million acres).....			
	1.9	2	+.1	5
IV Area Income	.....(million 1968 dollars).....			
1. Farm Income	26.4	34.8	+8.4	33
2. Non farm Income	67.8	69.5	+1.7	3
3. Total	94.2	104.2	+10.0	11
V Average Income Per Farm	.....('000 1968 dollars).....			
	5.3	7.0	+1.7	40

*Drainage, $7 million, and development, $851 thousand to 1972 and farm management training, $880, 1967-68 to 1972-73.

Source: F.L. Tung, J.A. MacMillan and C.F. Framingham, "A Dynamic Model for Evaluating Resource Development Programs," American Journal of Agricultural Economics, August 1976, In Press.

McMillan, et al (March, 1972) outlined the limitations to the generality of the results:

a. the livestock prices increased from 1968 to 1969;

b. the study utilized a small sample size of farm management clients and non-trainees (control group), thereby limiting the significance of the results;

c. 1969 income levels were negatively affected by the presence of non-farm jobs;

d. the results implied that farm management trainees' increased incomes were associated with percentage livestock sales. Livestock prices were found to be statistically significant. Fluctuations in livestock prices would alter the economic benefits derived from manpower services.

3.6.2 Agricultural Production - Land Clearing

Pareek, (1972) in a B/C analysis of land clearing for the Interlake, indicated that the present value of receipts is equal to the clearing costs in approximately three years. Income distribution effects were greater to lower income farms (90 percent of the participating farmers had gross sales less than $15,000) than to high income farms.

3.6.3 Agricultural Production - Land Drainage

Results from a benefit/cost study of the Interlake River Watershed (one of several watersheds in the Interlake) show a high B/C ratio

of 3:1. The research obtained covered the period 1959-69 (10 years) and was discounted at 5 percent to calculate the present value of benefits. Greater benefits were received by larger farms (as there would be a larger area of land to benefit from drainage programs). If a B/C analysis included farms with gross receipts under $10,000, the B/C ratio would have been 1:1.08. However, land drainage programs had a greater economic impact than would a straight transfer payment to low income farms.

3.6.4 Education

In 1968 approximately $7.4 million was spent for primary and secondary education in the Interlake. Of the $7.4 million, $1.7 million was spent in Winnipeg and $5 million was spent in the Interlake of which $4.6 million was spent for school staff wages and $0.4 million for purchase from local suppliers, (Molgat, P. and MacMillan, J.A. 1972, MacMillan, J.A. 1974).

Education has an socio-economic effect on local communities. Schools provide jobs to teachers and support staff, increasing the amount of money spent in the community and the frequency of visits by parents of children being taught. Local business and employment are facilitated through the construction of schools. The location of a school in a community influencs the communities growth.

Molgat and MacMillan (1972) calculated dropout rate in the Interlake by means of multiple regression analysis. "For the Interlake schools, the following factors were important in explaining variations in dropout rates among schools:

1. the higher the town average income, the lower the dropout rate;

2. the larger the number of extra-curricular activities, the lower the dropout rate;

3. the larger the number of course alternatives available, the lower the dropout rate;

4. the larger the percentage of Indian and Metis children, the higher the dropout rate;

5. the larger the school population, the higher the dropout rate," (Molgat and MacMillan, 1972, pg. 2).

Interlake towns with low average incomes tended to have lower paid teachers with lower qualifications. This implies that low income communities have low quality education.

Based on the average annual wage for the Interlake, Mogat, et al (1972) calculated a $10 thousand benefit (over an individual's working life) by completing high school, rather than dropping out after grade 10. If the individual completes university, he/she would benefit by an average of $24 thousand, rather than leaving school at grade 10.

Molgat and MacMillan (1972) outlined the limitations of the study (Education in Area Economic Development):

1. The sample size. A total of eleven schools were observed and six independent variables used in the regression equation. The resulting analysis only had four degrees of freedom for testing the significance of the results. Hays, (1973) states that the greater the degrees of freedom the more likely significance may be obtained from the data.

2. The data. The data used were from secondary sources (except income data). No differentiations were made between individuals with a university degree or university training but no degree. Dropout rates were determined by examining whether or not students registered in the same school for the next grade in the fall term. The method used was not accurate as students transferring during the summer months would have been categorized as dropouts.

3.7 Summary

MacMillan and Nickel (1976) summarize the outcome of the FRED plan, "There is no doubt that the FRED plan was 'successful'." Literature reviewed, discussing the ongoing evaluation of the FRED plan for the Interlake area, unanimously found the FRED plan to be a success. If true, the social and economic development of the Interlake should have advanced from its position as shown in the Lowry Nelson Study (1964). This practicum used Nelson's study to provide the social and economic base line data of the Interlake. A post-test analysis of the social and economic problems identified by Nelson would act as an indicator of the FRED program in achieving its goals.

CHAPTER 4

RESULTS

4.0 Introduction

In the Interlake region electricity serves almost every home; the highways in the area are either hard surface or all-weather gravel. Transportation by car or bus is available to most communities. In addition four railroads service the area. Nelson (1964) stated that one of the rail lines was to have been discontinued. However, at present all four lines continue to operate. Health services are available in the area or are readily accessible at Winnipeg. The two major resource industries in the Interlake area are agriculture and fishing.

4.1 Fisheries

Initially, Icelandic immigrants settled near Lake Winnipeg and later near Lakes Manitoba and Winnipegosis. In their homeland the Icelanders lived primarily by fishing and upon arriving in Manitoba they established commercial fishing on the lakes. Nelson (1964) stated that the commercial fisheries in the Interlake produced over 36 million pounds of fish with a market value of over 7 million dollars, with 4¼ million dollars going directly to the fishermen. Nelson further stated that if conservative fishing methods were followed, an annual increase in fish yield would result, and fishermen could expect a larger return

if more equitable methods of marketing were established and a reduction in the number of fishermen occurred.

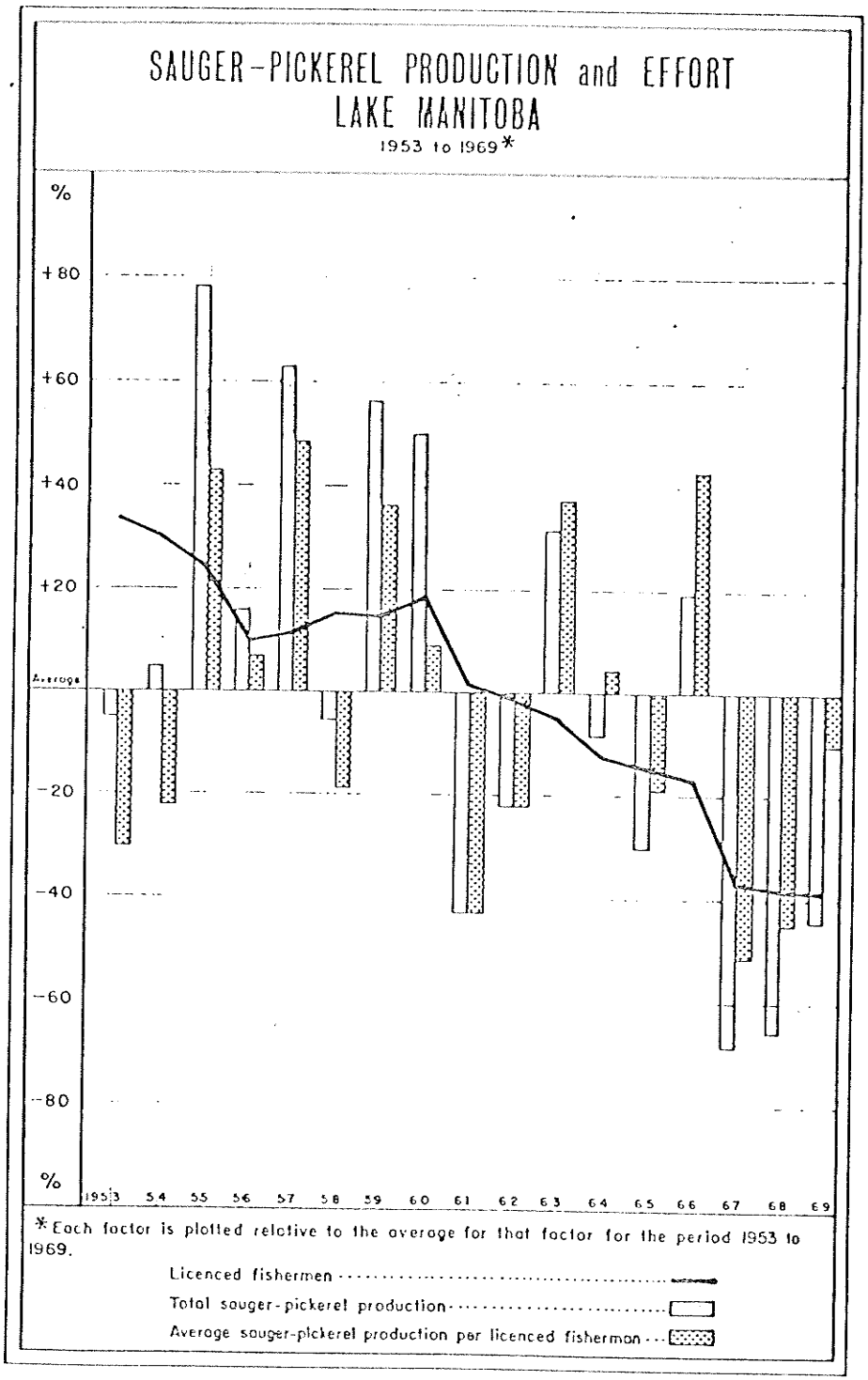
Between 1961 and 1969, the number of commercial fishermen on Lake Winnipeg declined by 30%, on Lake Manitoba by 39% and on Lake Winnipegosis by 52%. Not only the number of fishermen declined during this period but the average age of fishermen increased. Figures 2 and 3 show that a reduction in the number of fishermen has not resulted in a significantly greater catch by those who remained. Production of sauger and pickeral has been below average for Lake Manitoba and Lake Winnipegosis from 1967 to 1969 and 1964 to 1969 respectively. Fishermen received approximately 2¼ million dollars in 1969, or $2 million less than in 1962. Fish productivity was above average for Lake Winnipegosis in 1962 and below average for Lake Manitoba. The difference between above and below average production on the two lakes, however, was not large enough to account for the decreased loss of income.

4.2 The Physical Resource Base

Nelson provides a review of the physical resource base in the Interlake area. No generalizations may accurately describe the characteristics of the Interlake region. The land base is a combination which merges some features of the Red River Valley, the Prairie Parklands and the lakes and marshes of the northern boreal forests. Limestone bedrock occurs throughout the region and influences the productivity of the land.

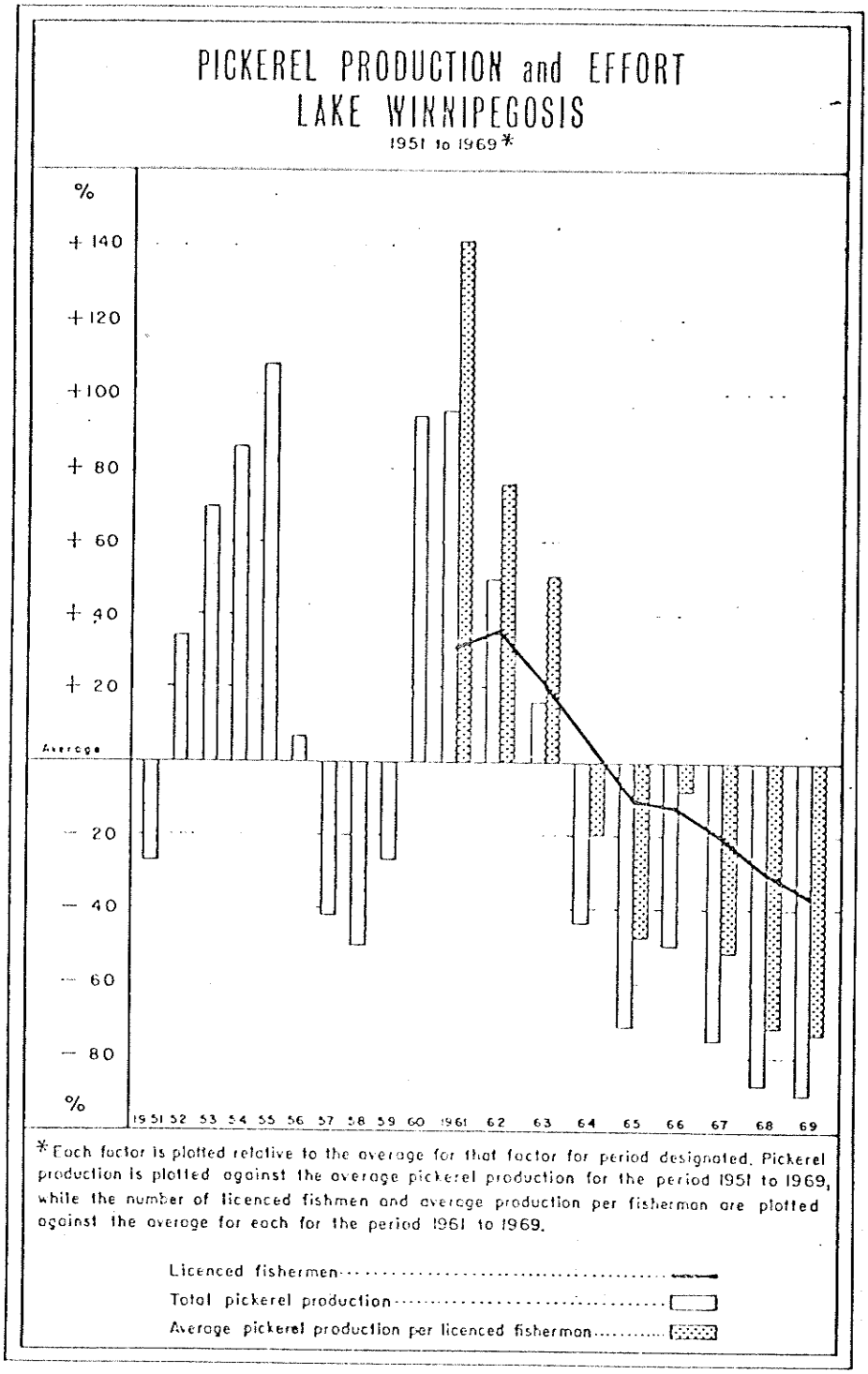
The Interlake soil types have a wide range of quality and type with shallow profiles on till textures ranging from clay to gravel. Drainage varies from very good to poor. In many regions special management

Figure 2



Source: Manitoba Department of Mines, Resources and Environmental Management. Fisheries Adjustment Study. FRED Federal-Provincial Project. Winnipeg, Manitoba, August, 1971.

Figure 3



Source: Manitoba Department of Mines, Resources and Environmental Management. Fisheries Adjustment Study. FRED Federal-Provincial Project. Winnipeg, Manitoba, August, 1971.

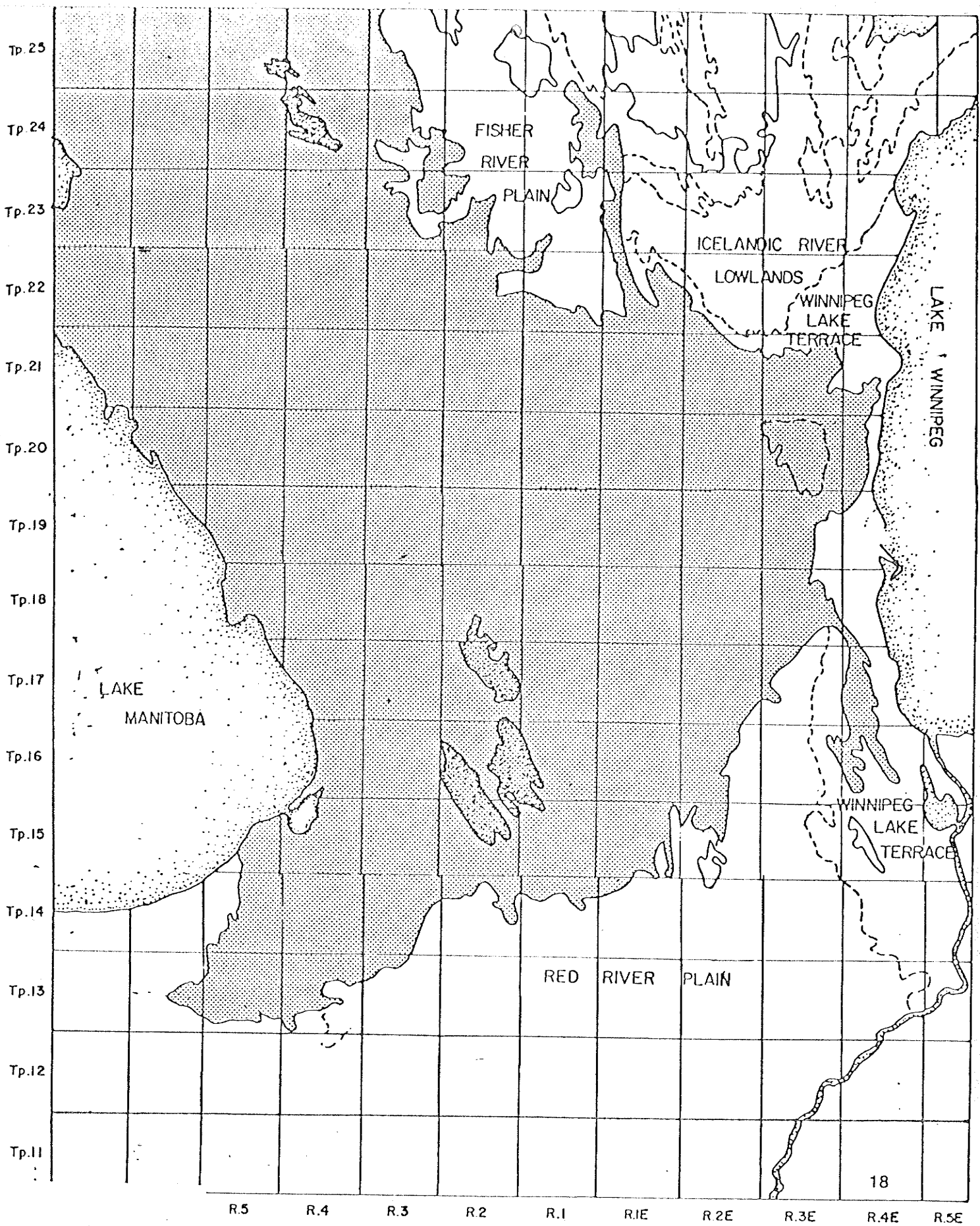
practices are needed to counter the adverse effects high lime content in the soils have on crop production.

There have been detailed soil surveys made of the Interlake area. Generally, the soil is stoney and has a high lime content. The topography is level to gently undulating. There are low limestone ridges forming a distinctive linear pattern from the northwest, to southeast. The dominant vegetation is aspen woods, with white spruce in the northern region, and burr oak in the southern region.

Map 3 shows the Interlake divided into two main regions based on geographic features. Approximately 65 per cent of the area consists of Till Plain and the remaining 35 per cent consists of Lacustrine deposit. The Interlake Till Plain has a thin, in most parts, stoney covering of soil. Limestone outcrops occur in some areas. There are two major soil types that occur in the Interlake Till Plain; the Isafold and the Garson types, (Map 3 and 4).

The Isafold soils occur in the western region of the Till Plain and contain high levels of lime, which discourages the growth of trees. The natural vegetation of the area are grasses. A high lime content in the surface horizon limits the availability of phosphorous and the amount of available nitrogen is low, when this is combined with a flat relief inhibiting drainage, the area is marginal for grain crops. However, the soil does produce good forage crops. The main agriculture production of the Isafold soils area is livestock production, dairy and poultry.

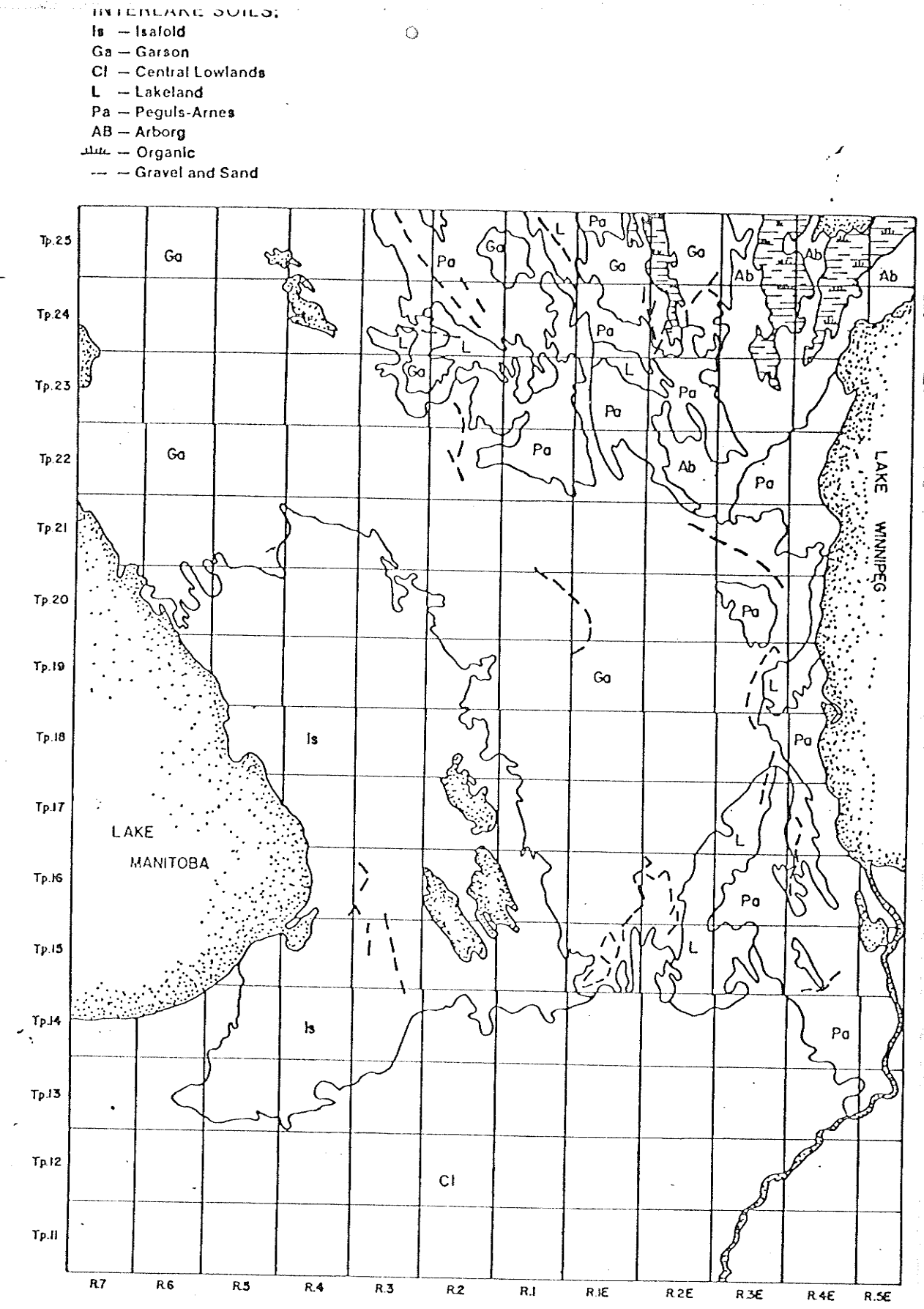
The Garson soils occur over a larger area of the Interlake Till Plain. The Garson soils have developed over high lime till and are usually very thin, and very stoney. This area is marginal for grain production and



Interlake Soil Zones: the shaded area is the Interlake Till Plain while the white area is the Lacustrine Deposit Area with sub-areas as indicated.

MAP 3

Source: Kantin Marquardt, et al. The Interlake: A Land and its People. October, 1971.



MAP 4

Source: Martin Marquardt, et al. The Interlake: A Land and its People. October, 1971.

the majority of the area is utilized for livestock production.

The Lacustrine deposit area (Map 4) occurs in the southern, north-central, and eastern regions of the Interlake. The soil consists of clay that is much thicker than that of the Till Plain, and was developed from deposits of glacial Lake Agassiz. The area consists of four regions; the Icelandic River lowland; the Fisher River plain; the Lake Winnipeg terrace; and the Red River plain. In the Garson soils region the main agricultural activity is mixed farming - meaning grain production along with livestock, dairy and poultry.

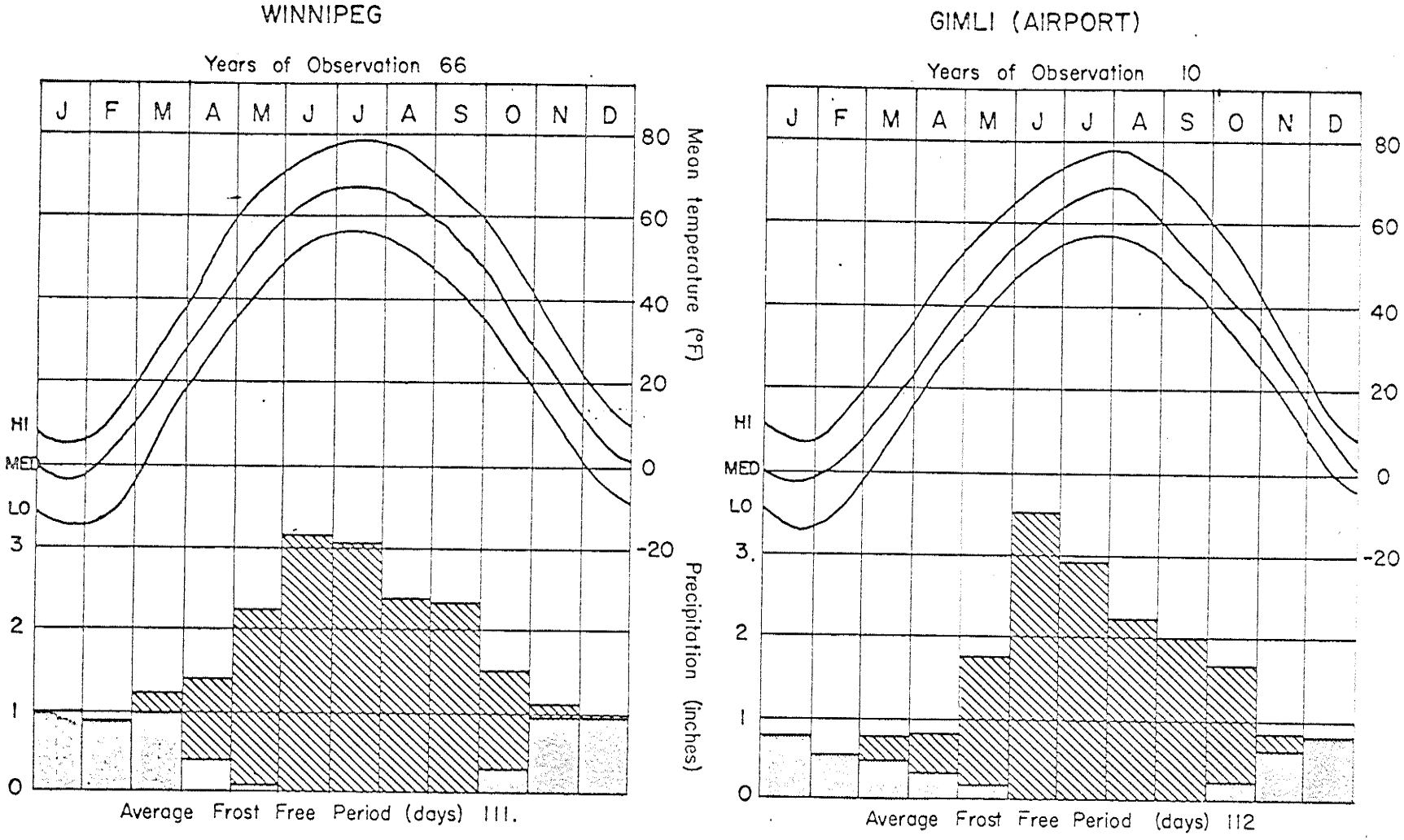
4.3 Climate

On the average (Figure 4) the Interlake has 90 to 110 frost free days per year. The south-central area has 100 frost free days. The land fringing the western shore of Lake Winnipeg has 110 frost free days. The interior of the Interlake north of Lake Manitoba has a 90 day frost free period, which is generally used for some forage crops and pasture as the growing season is too short for grain. The Interlake receives an average annual percipitation of 19 inches (including snow) varying from an average of 17 inches in the northern regions to 20 inches along the Red River. In the growing months of May, June and July, 40 per cent of the total rainfall is received. The average July daily temperature is 17 - 19.5 degrees Celcius, depending upon the location.

4.4 Agricultural Production

Agriculture is a much more important source of income than fisheries in the Interlake. In Division 12, in 1971 there were 2,646 farms

FIGURE 4



Source: Martin Marquardt, et al, The Interlake: A Land and its People. October, 1971.

representing a decrease of 20.9 per cent from a total number of 3,346 farms in 1961. The 1971 capital value of farms in Division 12 was $118,326,700, an increase of $64,837,200 or 54.7 per cent from 1961. The 1961 average Interlake farm value was just under $16,000 and increased to $44,700 in 1971.

The major limiting factor of farming and agricultural production in the Interlake is the soil quality. Table 3 shows the land use patterns of the Interlake region for 1961 and 1971, for the average farm by Divisions 12, 5 and 9 and their subdivisions. Nelson's study showed that in 1961 much of the Interlake farm land was 'unimproved' particularly in Division 12, where over two-thirds of the average farm land was in this category.

Table 3 shows that there was a 3.5 per cent reduction of unimproved lands per average farm in Division 12 during the period between 1961 and 1971. Division 12, in 1971 had slightly less than two-thirds of the average farm land categorized as unimproved. The subdivisions vary in the increase of improved land from 12.3 per cent in Gimli to a decrease of 0.3 per cent in St. Andrews and Rockwood. Both in 1961 and 1971 Divisions 5 and 9 had much more improved lands per farm than Division 12. The subdivision of St. Laurent had the largest amount of unimproved land per farm in both 1961 and 1971 (97.9 per cent and 91.4 per cent respectively) and Rosser and St. Francois Xavier had the largest developed acreage per farm in 1961 and 1971. Division 12 figures reflect the variability of soil quality.

In all divisions and subdivisions in the Interlake the average acreage per farm increased from 1961 to 1971. The largest division

TABLE 3

Average Farm Acreage According to Use in Divisions and Subdivisions of the Interlake, 1961, 1971.

Divisions & Subdivisions	Average Acres per Farm		Improved								Unimpnoved				
			Crops		Fallow		Pasture		Others		Acres		%		** %
	1961	1971	1961	1971	61	71	61	71	61	71	61	71	61	71	Δ
Division 12:	425	664	89	159	23	32	18	36	7	10	288	427	67.8	64.3	-3.5
Armstrong	395	624	61	97	11	15	24	47	8	9	291	456	73.7	73.0	-0.7
Bifrost	289	347	151	206	28	36	14	23	6	8	90	74	31.1	21.3	-9.8
Coldwell	787	1064	35	109	8	18	40	22	10	11	694	904	88.2	85.0	-3.2
Eriksdale	590	849	44	146	17	27	36	38	10	15	483	623	81.9	73.4	-8.5
Fisher	337	564	119	218	36	51	14	40	8	10	160	245	47.5	43.4	-4.1
Gimli	230	291	79	116	16	23	8	21	4	8	123	120	53.5	41.2	-12.3
Grahamdale	473	847	80	162	23	31	23	52	12	12	335	590	70.8	69.7	-1.1
St. Laurent	561	1030	8	60	1	5	1	14	2	10	549	941	97.9	91.4	-6.5
Siglunes	686	1018	57	125	20	27	11	19	8	7	590	840	86.0	82.5	-3.5
Division 5:	214	263	118	157	36	41	10	9	5	7	45	49	21.0	18.6	-2.4
St. Andrews	228	292	135	181	35	39	10	9	5	7	43	56	18.9	19.2	+0.3
St. Clement	167	205	87	113	27	37	7	8	4	7	42	40	25.1	19.5	-5.6
Division 9:	401	500	180	246	61	54	22	27	8	10	130	162	32.4	32.4	0.0
Rockwood	308	384	139	191	45	40	21	22	7	10	96	121	31.2	31.5	+0.3
Rosser	462	870	297	658	105	129	13	16	8	17	39	50	*8.4	5.7	-2.7
St. Francois Xavier	441	496	267	367	108	92	9	2	11	8	46	27	10.4	5.4	-5.0
Woodlands	538	695	168	227	52	56	36	52	10	10	272	350	50.6	50.4	-0.2

* Reported as .8% in the Lowry Nelson report, should read 8.4%.

** "+" represents a percentage increase in unimproved lands per average farm.

Source: 1961 Census of Canada: Agriculture, Manitoba. Table 28
1971 Census of Canada: Agriculture, Manitoba. Tables 49, 50.

change occurred in Division 12 with an average increase of 239 acres per farm. Rosser had the largest overall subdivisional increase of 408 acres per average farm. Division 12 had the largest increase of unimproved land of 139 acres per farm representing over half of the average acreage increase per farm (239 acres). The majority of the land in Division 12 remains unimproved, where over two-thirds of the farm land was in this category for 1961 and 1971.

4.4.1 Farm Productivity

The absence of good land in the Interlake finds expression in the comparative standing of several agricultural factors for census divisions. Ranks for several items are presented in Table 4 and Table 5. In 1961, Census Canada defined a commercial farm as receiving $1,200 or more for products sold. In 1966, Census Canada defined a commercial farm as receiving $2,500 or more for products sold. In 1971, Census Canada eliminated the term 'commercial farm', since what may be considered commercial in one region may be considered non-commercial in other regions. However, 1971 Census continued to categorize farms with sales over $2,500. It is for this reason that farms with sales over $1,200 in 1961 were compared with farms with sales over $2,500 in 1971 (item E, Tables 4 and 5) and 1961 farm sales of $1,200 to $2,499 were compared to 1971 farm sales of $2,500 to $3,749 (item F, Tables 4 and 5).

The ranks of the agricultural indicators are generally consistent within the census divisions. However, some variations occur, mainly in the better agricultural areas. The greatest differences occur between per farm and per acre values for the first four items (A, B, C, D).

TABLE 4

Ranks of Census Divisions on Seven Agricultural Factors, 1961 (Divisions 16 and 20 excluded).

Division Number	Ranks (H-L)							TOTAL	RANK ON TOTAL
	A	B	C	D	E	F	G		
1	11	4	9	5	14	9	13	65	9
2	3	1	2	1	6	4	5	22	2
3	2	6	3	6	2	1	4	24	3
4	4	13	5	12	1	2	2	39	4
5	13	2	11	1	17	15	11	71	12
6	1	3	1	3	7	3	1	19	1
7	5	8	6	8	5	5	8	45	5
8	7	14	8	15	4	6	3	57	7
9	6	5	4	4	12	8	9	48	6
10	10	10	12	11	9	11	7	70	11
11	9	11	10	10	8	10	10	68	10
12	16	17	16	17	16	17	12	111	16
13	8	15	7	13	3	7	6	59	8
14	14	16	15	16	11	12	17	101	15
15	12	7	13	7	13	14	16	82	13
17	15	9	14	9	10	13	14	84	14
18	17	18	18	18	15	16	15	117	18
19	18	12	17	14	18	18	18	115	17

A = Average value of farm
B = Average value per acre
C = Average value of land and buildings per farm
D = Average value of land and buildings per acre
E = Percentage of all farms with sales over $1,200
F = Farm percentage with sales of $1,200 to $2,499
G = Tractors per 100 farms.

Source: Census of Canada, 1961, Agriculture, Series 5.3.

TABLE 5

Ranks of Census Divisions on Seven Agricultural Factors, 1971 (Division 16 and 20 excluded).

Division Number	RANKS (H-L) A	B	C	D	E	F	G	TOTAL	RANK ON TOTAL
1	10	2	10	3	14	7	17	68	8
2	8	1	4	1	6	6	11	44	3
3	3	6	3	6	2	3	3	39	2
4	2	9	2	9	1	2	8	48	4.5
5	16	3	15	2	17	17	14	69	9
6	1	4	1	4	7	8	5	33	1
7	5	7	7	7	3	4	9	53	7
8	4	10	5	10	4	5	2	49	6
9	7	5	6	5	13	13	6	48	4.5
10	11	13	11	14	9	11	10	76	13
11	9	12	9	12	8	9	12	72	11
12	15	17	16	17	16	15	1	86	17
13	6	14	8	13	5	1	7	71	10
14	12	16	13	5	10	10	15	80	14
15	13	8	12	8	11	14	18	75	12
17	14	11	14	11	12	12	16	85	16
18	17	8	17	18	15	16	4	82	15
19	18	15	18	16	18	18	13	99	18

A = Average value of farm
B = Average value per acre
C = Average value of land and buildings per farm
D = Average value of land and buildings per acre
E = Percentage of all farms with sales over $2,500
F = Farm percentage with sales of $2,500 to $3,749
G = Tractors per 100 farms

Source: Statistics Canada, Census of Canada, 1971, Cat. No. 96-708.

The Interlake (Division 12) falls into the lowest group, third from the bottom in 1961, second from the bottom in 1971. However, in 1961, the Interlake ranked 12th for the number of tractors per 100 farms and in 1971 ranked first with an average of 2.2 tractors per farm. Items A, B, B, D, E and F for the Interlake remained relatively unchanged between 1961 and 1971.

Nelson (1964) states that 'the average value per farm by itself is shown to be a reasonably good index of agricultural excellence among census divisions' (pg. 16). Figure 5 shows the ranking average farm value for 1961 and 1971. All dollar values are in current dollars for the respective year reported. Division 12 ranks third from the lowest for 1961 and fourth lowest in 1971.

The number of farms in Division 12 declined 22.6 per cent in the 1950's and 20.9 per cent in the period 1961 to 1971. The improved land per farm increased 68 per cent during the 1950's and 72.9 per cent from 1961 to 1971. The reduction of the number of farms resulted in a consolidation of farms. Average farm size in 1971 was 56 per cent larger than the average farm size for 1961.

4.5 Income of Non-Farm Families and Individuals Not in Families

The Census of Canada for 1961 and 1971 reported income by families and by 'persons not attached to families' (for definition see Glossary of Terms). The families are grouped according to income in $500 intervals to $3,000 and by $1,000 intervals from that amount up to $10,000 or more. The 1961 data was based on a 20 per cent sample and the 1971 data was based on a 33 per cent sample. The family figures represent

FIGURE 5

AVERAGE VALUE OF FARM ($ 000)

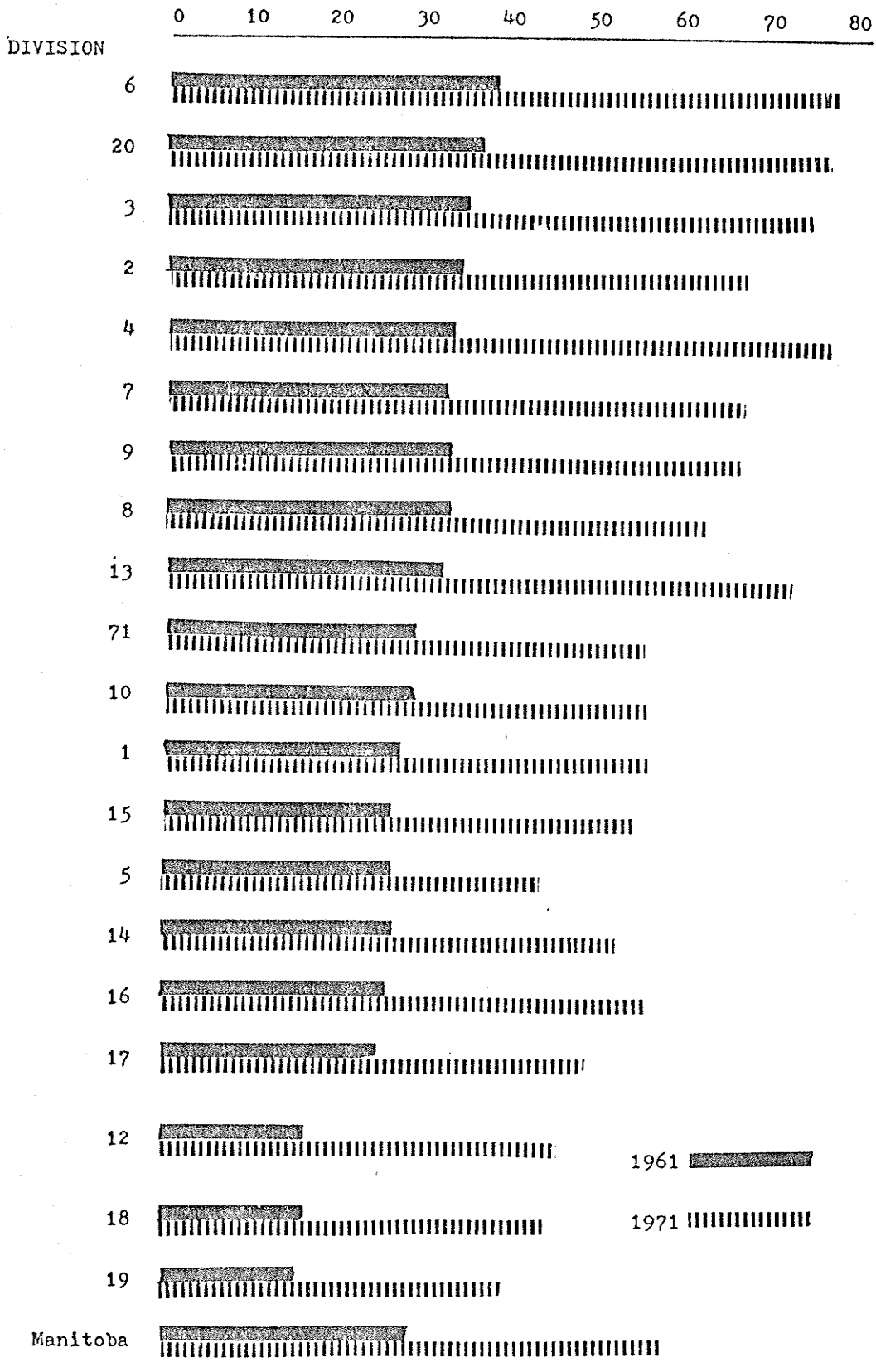


FIGURE The average value of farms by division, 1961, 1971.

Source: 1961 Census of Canada, Vol. V, Part 3, Bulletin 5.3-1.

1971 Census of Canada, Agriculture, Manitoba. Table 39.

'total income' (see Glossary of Terms).

The data was compiled to demonstrate the economic situation in the Interlake vis-a-vis the rest of the province and to illustrate the changes that occurred over the period 1961 to 1971. Family incomes were computed in three categories: The average income for the division; portion of families with less than $2,000 earnings; and with $5,000 or more. The results are found in Table 6. Division 20 was excluded from the ranking.

In 1961 Division 12 ranked among the poorest (rank of 16) divisions in regard to average family income. During the ten year interval Division 12 increased its average family income ranking to 13th highest in the province, representing an average increase of $2,338 per family (68.3 per cent increase). Division 12 ranked 11th in the province for the average percentage increase for family incomes for the ten year study period. In 1961 there were 1,114 families (34.7%) in Division 12 with less than $2,000 annual income from all sources. In 1971, 1,053 families reported incomes from all sources as being less than $2,000 per year, representing a decrease of 16.6 per cent of all families earning less than $2,000 per year. Relative to other divisions in the province, Division 12 in 1961 ranked 16th in regard to those incomes under $2,000, and increased its relative ranking in 1971 to 13th. In 1961, 18 per cent of the Interlake families report incomes of $5,000 or more, placing Division 12 as third from the lowest in this category. In 1971, 46.2 per cent of the families reported incomes of $5,000 or more, representing an absolute increase of 28.1 per cent of families reporting incomes greater than $5,000, placing Division 12 eighth from lowest in this category.

TABLE 6

Average Income of Families by Census Division, and by Special Income Groups, 1961, 1971.

DIVISION	Number of Families		Average Income ($)		RANK on $\bar{X}$ Income (H-L)		Percentage Change of $\bar{X}$ Income	RANK on % Change (H-L)	Under $2,000 %		Under $2,000 RANK (L-H)		$5,000 or More %		$5,000 or More RANK (H-L)	
	1961	1971	1961	1971	1961	1971			1961	1971	1961	1971	1961	1971	1961	1971
1	2,851	6,455	4,236	6,830	5	7	61.2	13	18.6	11.6	3	4	26.4	58.4	8	7
2	4,237	7,810	3,598	6,199	15	11	72.3	6	31.3	13.8	14	9	20.7	51.5	13	10
3	2,355	4,530	3,608	5,791	14	12	60.5	14	31.8	16.3	15	12	19.7	45.8	15	13
4	1,524	3,110	2,794	6,230	12	10	122.9	1	26.6	13.5	11	7	22.6	50.5	12	11
5	4,351	7,785	4,334	7,401	4	4	70.8	9	20.3	9.9	4	3	31.8	65.3	4	3
6	4,220	6,660	4,491	6,993	3	6	55.7	15	17.7	13.6	2	8	34.0	60.3	3	4
7	9,184	12,680	4,692	8,049	1	2	71.5	7	13.2	7.1	1	1	34.8	70.3	2	2
8	3,118	4,295	4,154	6,427	6	9	54.7	16	20.8	13.9	5	10	29.9	54.7	5	9
9	1,230	2,730	4,057	7,474	8	3	89.2	3	21.3	15.4	6	11	28.4	60.0	6	5
10	2,522	4,415	3,900	5,536	10	14	41.9	19	25.8	18.2	9	14	24.4	45.0	11	15
11	1,558	2,725	3,041	5,001	18	17	64.5	12	40.7	22.6	18	18	14.6	36.5	18	18
12	3,209	5,815	3,423	5,761	16	13	68.3	11	34.7	18.1	16	13	18.1	46.2	17	12
13	1,452	2,775	3,758	5,534	13	15	47.3	17	26.0	19.6	10	17	24.8	43.8	10	16
14	582	1,395	3,174	5,395	17	17	70.0	10	37.1	18.3	17	15	18.6	45.2	16	14
15	1,873	3,205	3,870	5,494	11	16	42.0	18	29.2	19.0	13	16	20.0	43.2	14	17
16	8,805	14,500	4,518	9,104	2	1	101.5	2	25.1	9.5	7	2	44.1	73.2	1	1
17	3,062	5,015	3,927	6,790	9	8	72.9	5	26.6	13.0	11	6	25.9	55.9	9	8
18	1,560	2,905	2,525	4,498	19	9	78.1	4	50.9	25.5	19	19	11.1	31.2	19	19
19	2,833	4,425	4,101	7,017	7	5	71.1	8	25.4	12.5	8	5	27.5	59.3	7	6
20*	114,785	132,540	5,874	9,989	/	/	70.1	/	8.3	3.9	/	/	50.5	82.6	/	/
Man.	175,311	235,765	5,260	8,646	/	/	64.4	/	13.8	8.1	/	/	43.1	71.6	/	/

* Not Included in Rankings

Source: 1961 Census of Canada. Population Sample - Family Income by Size. Cat. No. 98-503, Table C-4.

1971 Census of Canada. Families Cat. 93-724, Vol. II, Table 85.

In terms of family income in 1961, Division 12 compared unfavorably with the rest of the province with very few exceptions. Even when total income was considered the average family income of Division 12 was such as to give it a rank of 16 among 19 of the divisions (excluding Division 20).

During the study period, family income increased. However, Division 12 remained in the lower half relative to other divisions, so as to give it a rank of 12 among 19 of the divisions for average family income in 1971.

Incomes of persons not attached to families were computed in three categories: the average income for the division; unattached persons earning less than $1,000; and those earning $6,000 or more. The results are presented in Table 7.

The average income for persons not attached to families increased from $1,241 to $2,436 over the study period. Relative to other divisions in the province, Division 12 in 1961 ranked third from the bottom, and in 1971 increased its position to 10th from the bottom in this category. The average income for unattached persons in Division 12 increased by 96.3 per cent, ranking second highest in the province, with Division 16 ranking highest. In 1961, 45.8 per cent of non-family persons in Division 12 earned less than $1,000, and in 1971, 25.1 per cent of the non-family persons fell into this category, representing a decrease of 20.7 per cent. This may appear to be a definite improvement. However, when the number of unattached persons earning less than $1,000 for Division 12 was compared with the other divisions in the province, Division 12 in 1961 ranked 12th and in 1971 decreased to a rank of 13. Of the

TABLE 7

Income of Persons not Attached to Families, by Division and Income Groups, 1961, 1971.

DIVISION	Number of Non-Family Persons		AVERAGE Income ($)		RANK on $\bar{X}$ Income (H-L)		Percentage Change of $\bar{X}$ Income	RANK on % Change (H-L)	Under $1,000 %		Under $1,000 RANK (L-H)		$6,000 or More %		$6,000 or More RANK (H-L)	
	1961	1971	1961	1971	1961	1971			1961	1971	1961	1971	1961	1971	1961	1971
1	854	1065	1182	2300	19	14	94.6	3	51.5	23.7	17	11	0.9	7.7	14	15
2	1594	2765	1512	2484	9	9	64.3	9	45.2	17.7	11	2	1.4	7.8	11	14
3	1157	1975	1664	2662	6	5	60.0	12	40.4	16.2	6	1	2.4	8.6	5	11
4	796	1315	2074	2756	2	3	32.9	17	43.1	21.7	8	8	4.0	11.4	2	4
5	1507	3445	1418	2321	13	13	63.7	10	43.3	26.3	9	15	0.7	9.3	16	9
6	1661	3610	1848	2163	4	15	17.0	19	35.1	41.8	3	19	2.8	21.1	3	2
7	3489	7445	1909	2910	3	2	52.4	15	32.5	18.7	2	5	2.4	11.3	5	5
8	1210	1790	1587	2626	7	6	65.5	7.5	40.3	18.4	5	4	2.4	8.7	5	10
9	418	1315	1753	2070	5	17	18.1	18	41.9	35.0	7	18	2.2	6.5	7.5	18
10	1116	2080	1465	2497	10	7.5	70.4	6	38.5	19.2	4	6	2.2	8.4	7.5	12.5
11	727	1240	1339	2153	14	16	60.8	11	55.4	25.4	18	14	0.4	7.3	17	16
12	1202	2435	1241	2436	17	10	96.3	2	45.8	25.1	12	13	1.6	11.1	10	6
13	694	1165	1451	2402	12	11	65.5	7.5	43.5	20.2	10	7	2.0	9.4	9	8
14	252	620	1221	1796	18	19	47.1	16	57.5	31.5	19	17	0.0	3.2	18.5	19
15	764	1310	1336	2497	15	7.5	86.9	5	46.6	22.9	14	9	0.0	9.9	18.5	7
16	2727	7105	2276	4707	1	1	106.8	1	25.1	18.1	1	3	4.6	33.7	1	1
17	1324	2505	1519	2322	8	12	52.9	14	45.9	25.0	13	12	1.1	8.4	13	12.5
18	595	1320	1294	2012	16	18	55.5	13	47.6	28.0	15	16	0.7	6.8	15	17
19	1016	1740	1457	2752	11	4	88.9	4	48.8	23.0	16	10	1.3	14.1	12	3
20*	48,590	73,235	2165	3500	/	/	61.7	/	26.9	16.0	/	/	3.2	13.6	/	/
Can.	71,693	120,470	2003	3232	/	/	61.4	/	31.2	18.8	/	/	2.8	15.7	/	/

* Not Included in Rankings.

Source: 1961 Census of Canada. Population Sample, Family Income by size. Cat. No 98-503, Table C-3.

1971 Census of Canada. Families, Vol. II, Part 2, Cat. No. 93-724, Table 86.

non-family persons in Division 12, 1.6 per cent earned more than $6,000 in 1961 and 11.1 per cent in 1971. In 1961 the rank for this category in Division 12 was 10 and improved to a rank of 6 in 1971. More unattached individuals are making more money in 1971 than in 1961 both absolutely (as would be expected with inflationary trends) and relatively.

Family and non-family person incomes are improving within the Interlake and in comparison with other divisions in Manitoba. Non-family person incomes are increasing at a faster absolute and relative rate than are family incomes in Division 12.

4.6 Population and Migration

For the foreseeable future, land settlement is over in the Interlake. Areas which were regarded at one time as suitable for agriculture have been abandoned and some of that land has reverted to the crown. Much of the abandoned land has been put to other uses than farming. Due to improved farming technology and farm management, farms are growing larger. Farm output per person has also increased to the point that only a fraction of the number previously employed in farming are presently needed. These and other factors have contributed to migration the movement of people from region to region within the country.

Factors that influence the movement of people may be called 'push' or 'pull' factors and often may be combined. The rate of population growth may operate as a push factor. In the case of rural farm populations, more people are growing up on farms than can find jobs there. The availability of jobs elsewhere acts as a pull factor. Migration usually occurs to large urban centers. Migration is one of the options

available to a person to cope with regional differences in employment opportunities. In reality, not everyone can move; but many have and will continue to do so in their search for better jobs, better education, or better climate.

From 1951 to 1961 Nelson noted that Manitoba's total population increased by 18.7 per cent while Manitoba's farm population declined by 20.7 per cent and urban population grew by 33 per cent. From 1961 to 1971 Manitoba's total population increased by 7.2 per cent while Manitoba's farm population declined 31.5 per cent and urban population grew by 16.6 per cent. The rural-to-urban migration is a world wide phenomenon. People leaving the rural areas cause a readjustment of the local institutions and social conditions. Trade centers often decline in size. Schools, churches and other social services relocate or amalgamate.

Analysis of census data can show what age group, and whether or not more women than men migrate from rural regions.[1]

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[1]Populations that are unaffected by migration have certain characteristics. The male - female ratio is evenly divided, with a slight tendency for female to outnumber the males with increases in age. A population pyramid is based on age and sex groups, in which the total population of all ages is equal to 100 per cent and the relative share of the population fall in each age and sex group is expressed as a per cent of the total. Three factors determine the form of a pyramid: natality; mortality and migration. If a population is effected by migration the typical effect on the population pyramid is to make it fatter in the middle if the migration is inward and to make it lean in the middle if there is more out-migration. If the pyramid is skewed either to the male or female side it means that sex-selective migration may be occurring.

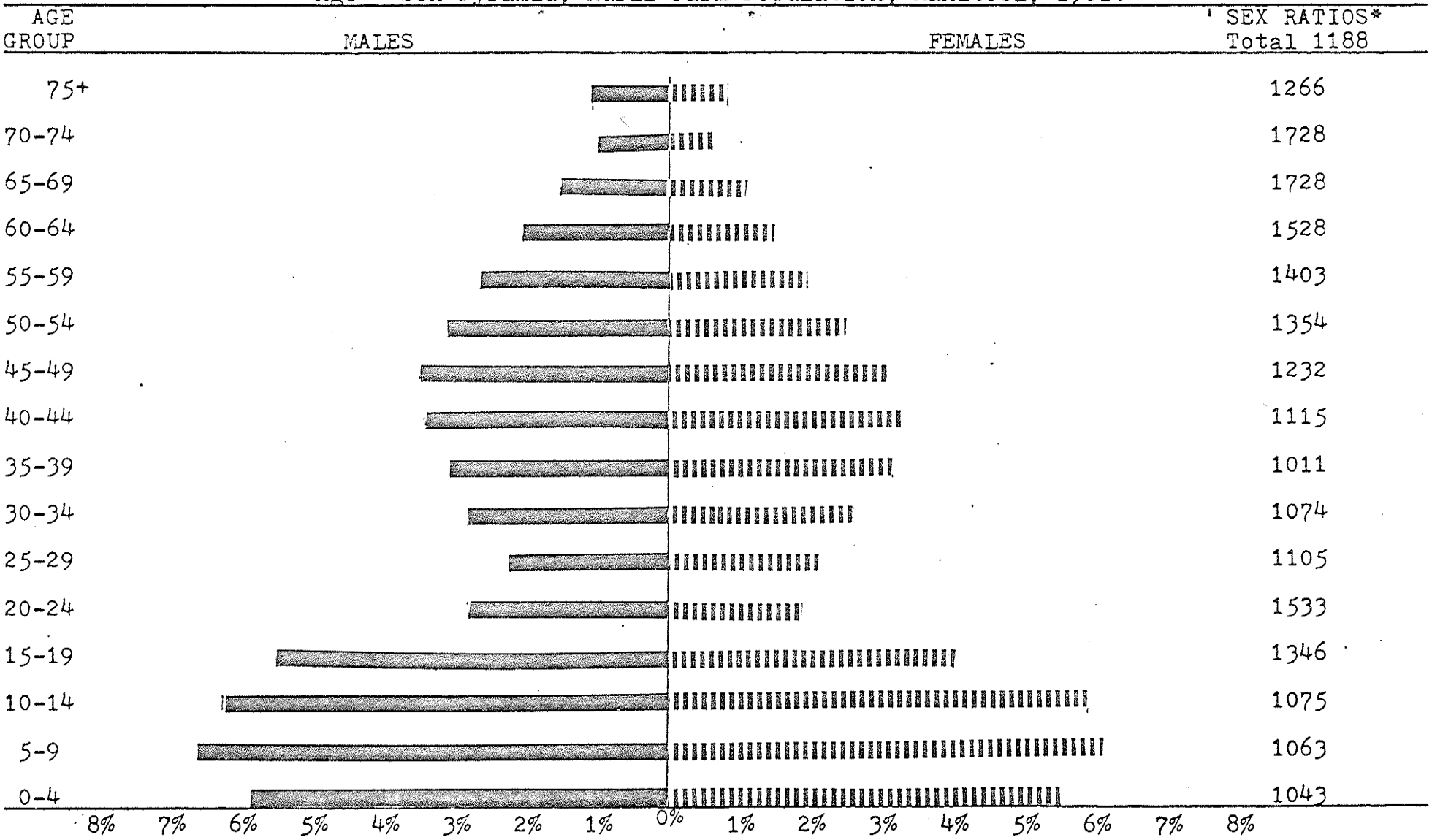
Figure 6 shows a small percentage of rural farm population between the ages of 20 to 35 in 1961. In 1971 (Figure 7) the percentage of rural farm population continues to decrease affecting a larger age group, namely those 20 to 39 years of age. In the 1961 age groups of 15 - 19 and 20 - 24 there is a gender ratio of 134.6 and 153.3 males per 100 females respectively, indicating a strong outward female migration. The trend of outward female migration had continued throughout the ten year period to 1971, where the gender ratio for the age groups 15 to 19 and 20 to 24 was 121.7 and 158.8 males per 100 females, respectively.

The excessive female migration can be further exemplified in Figures 8 and 9 which are based upon gender ratios by age for the Interlake in 1961 and 1971 respectively. In 1971 a slightly greater male to female sex ratio in the age group of 20-24 occurs than in 1961. The onset of outward female migration from the Interlake area commenced with an earlier age group in 1961 than in 1971; typified by the broader axis for the age groups, 10 to 34 in 1961 than 1971. In 1961 female outward migration began at the approximate age of 14, whereas in 1971 the onset occurred at the approximate age of 19. The age group of 45 and over for both 1961 and 1971 are predominantly males. An influencing factor here may be that widowed women in the higher age groups would be more likely to leave the farm and move to the towns and cities than would men in the circumstances.

Many factors influence the excessive female migration from the rural areas. There are fewer employment opportunities for girls in rural farm communities than for boys. Attractive jobs such as clerical workers, waitresses and other predominately female occupations act as a major

FIGURE 6

Age - Sex Pyramid, Rural Farm Population, Manitoba, 1961.

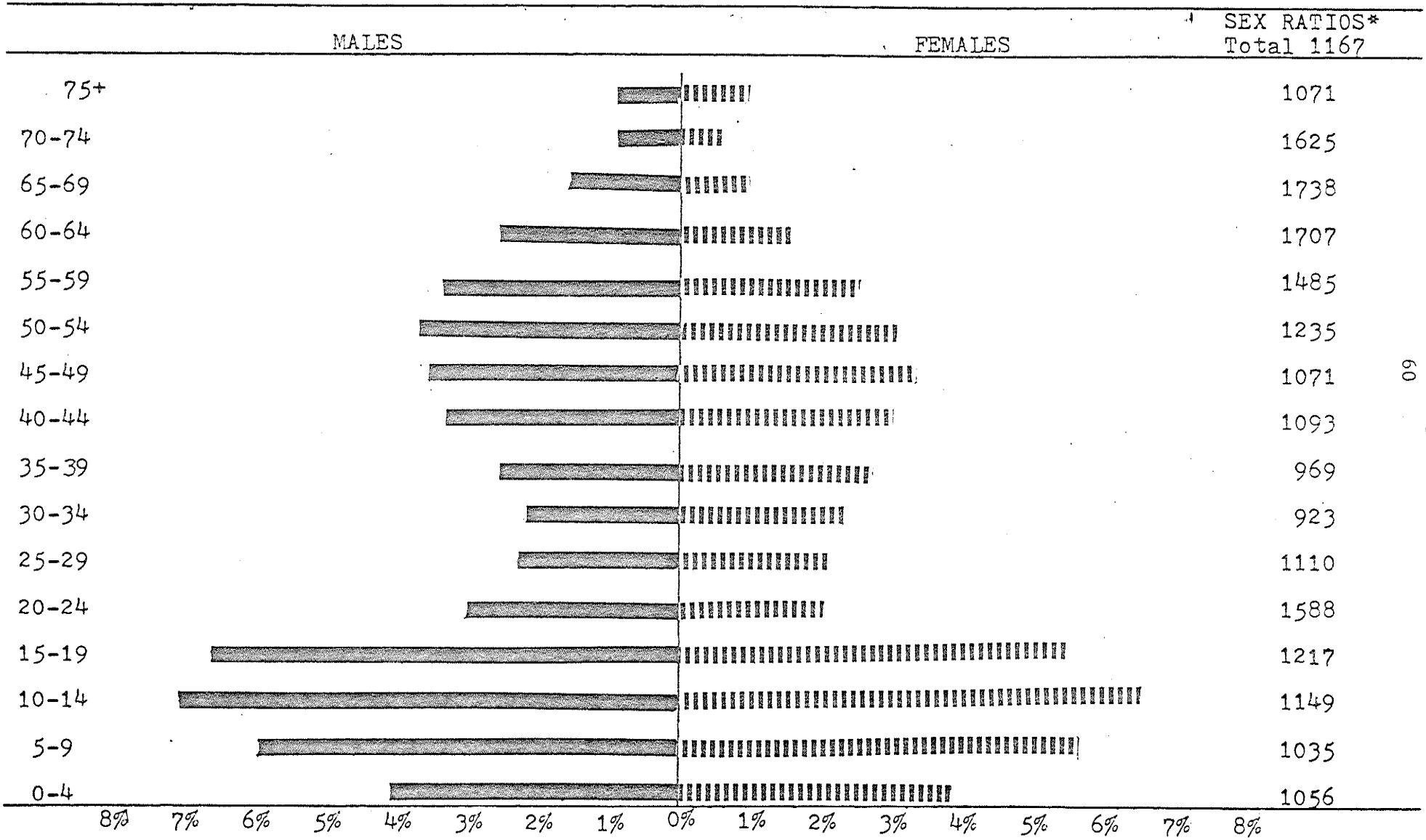


*Males Per 1,000 Females

Source: 1961 Census of Canada, Population, Age Groups, Table 21, Cat. No. 92-542.

FIGURE 7

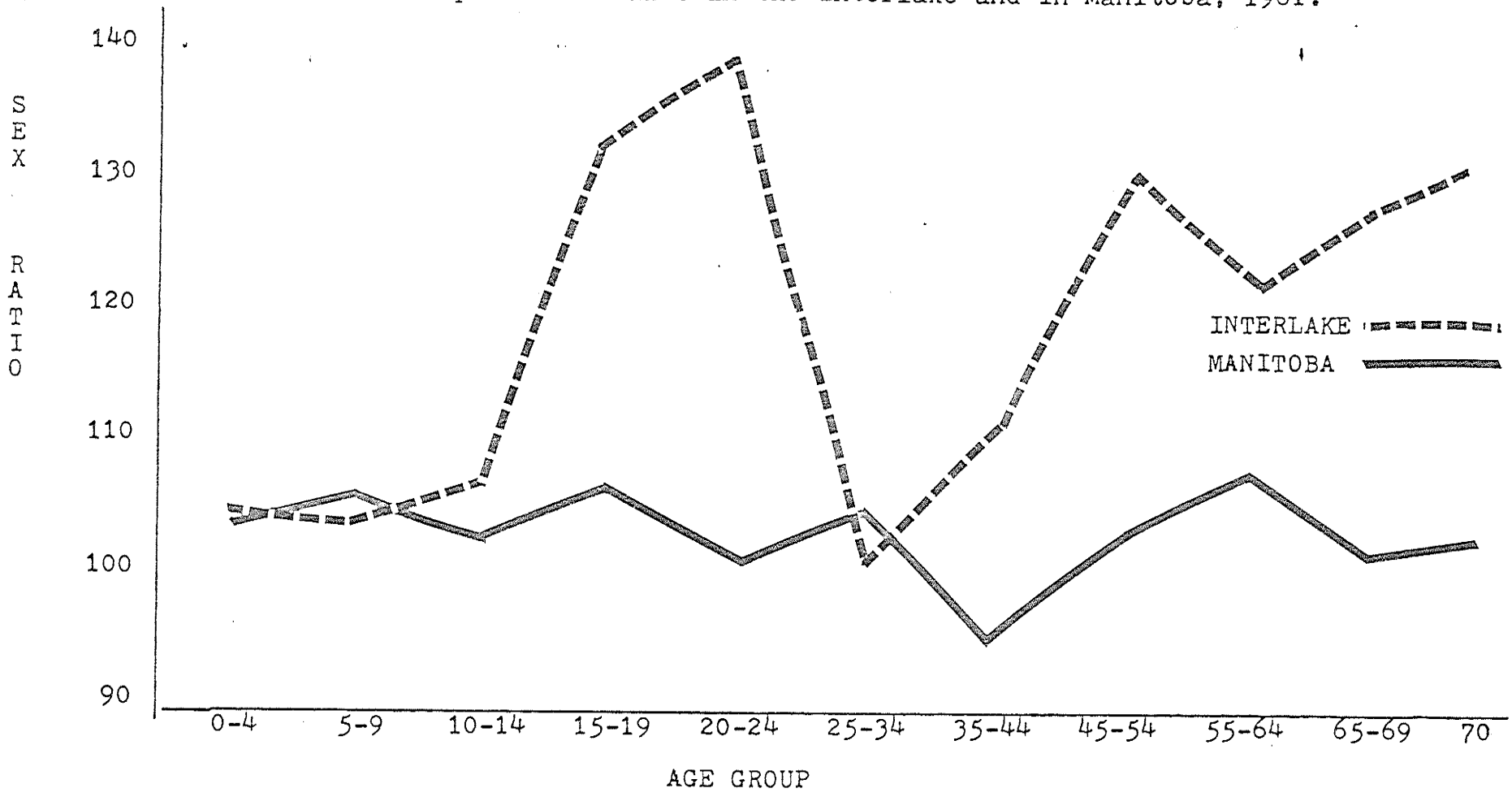
Age - Sex Pyramid, Rural Farm Population, Manitoba 1971.



*Males Per 1,000 Females

Source: 1971 Census of Canada, Population, Age Groups, Table 8, Cat. No. 92-715.

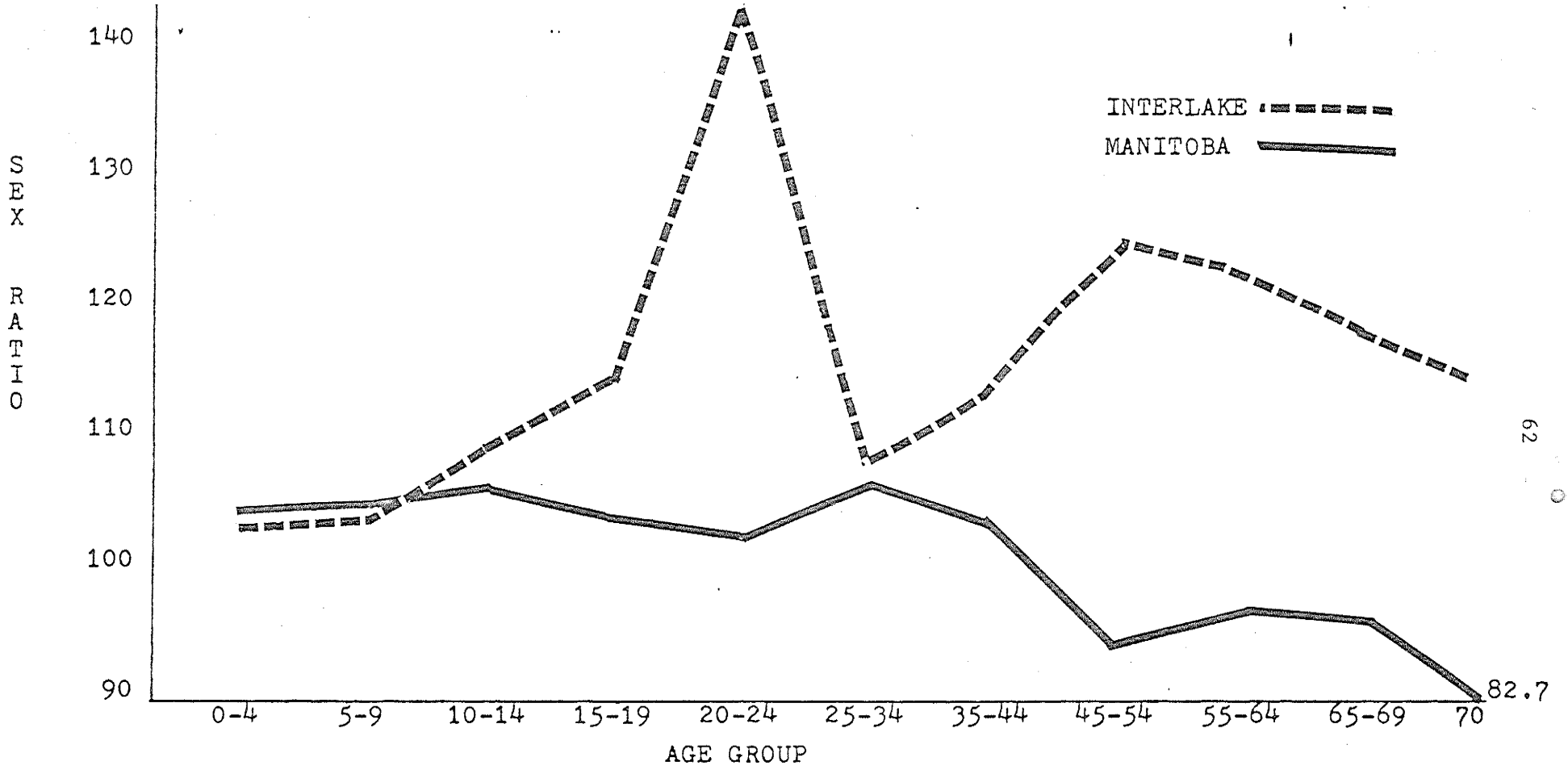
FIGURE 8 . Males per 100 females in the Interlake and in Manitoba, 1961.



Source: 1961 Census of Canada, Population, Cat. No. CS 92-534.

1961 Census of Canada, Population, Age Groups, Cat. No. CS92-542.

FIGURE 9 . Males per 100 females in the Interlake and in Manitoba, 1971.



Source: 1971 Census of Canada, Population Age Groups. Cat. No. CS92-715.

1971 Census of Canada, Population Sex Ratios. Table 3, Cat. No. 92-714.

pull force. The contrary exists for men. Migrant rural farm males enter the unskilled labour force which has a steadily increasing surplus due to automation, mechanization and migration. The pull factor in the male situation is not as strong as that of the female. A factor that would tend to keep the women on the farm for a longer period of time (1961 opposed to 1971 migration figures) before migrating is that a higher proportion of females were obtaining a secondary education in 1971 than in 1961 (Figures 10 and 11).

Table 8 shows the population counts for the Interlake area in 1961, 1971 and 1976. Population counts increased in four (St. Andrews, St. Clements, Rockwood and Rosser) of the 19 subdivisions during the fifteen year period from 1961 to 1976. All four subdivisions that recorded population increases were located in the southern portion of the Interlake close to Winnipeg. The largest population gain of 26.2 per cent occurred in the municipality of St. Andrews while the municipality of Bifrost reported the largest decrease of 34.3 per cent of the population.

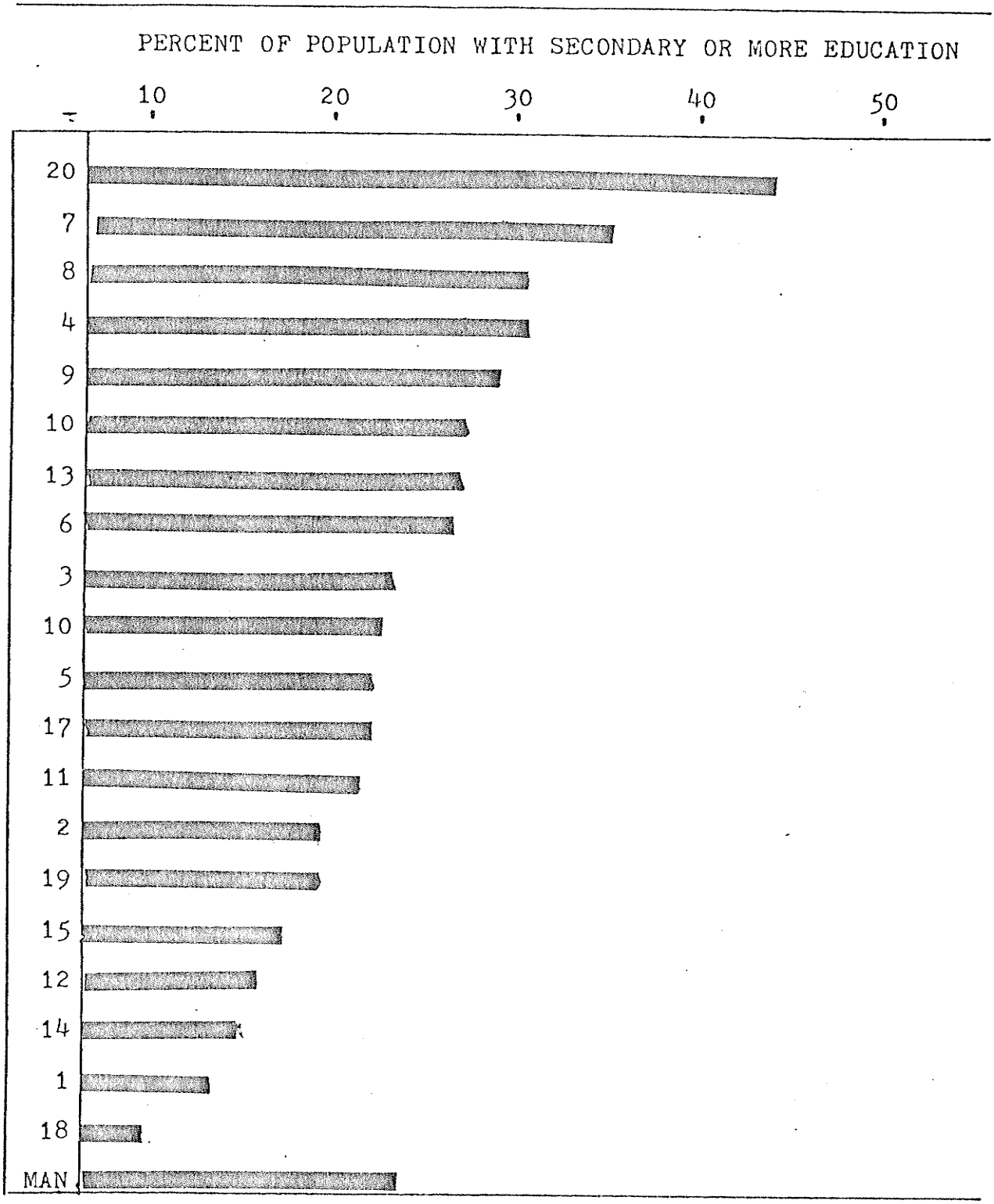
4.7 Education

The education level of a population in a low income area inevitably would suffer in comparison to an economically more favourable area. In agricultural areas this is particularly the case. Settlement tends to be scattered making transportation difficult and expensive.

Roads may become impassable during bad weather resulting in loss of school attendance. Country schools often have trouble hiring experienced teachers resulting in a poorer quality of education than might be found in an urban setting. In 1961 (Figure 10) the upper region of the

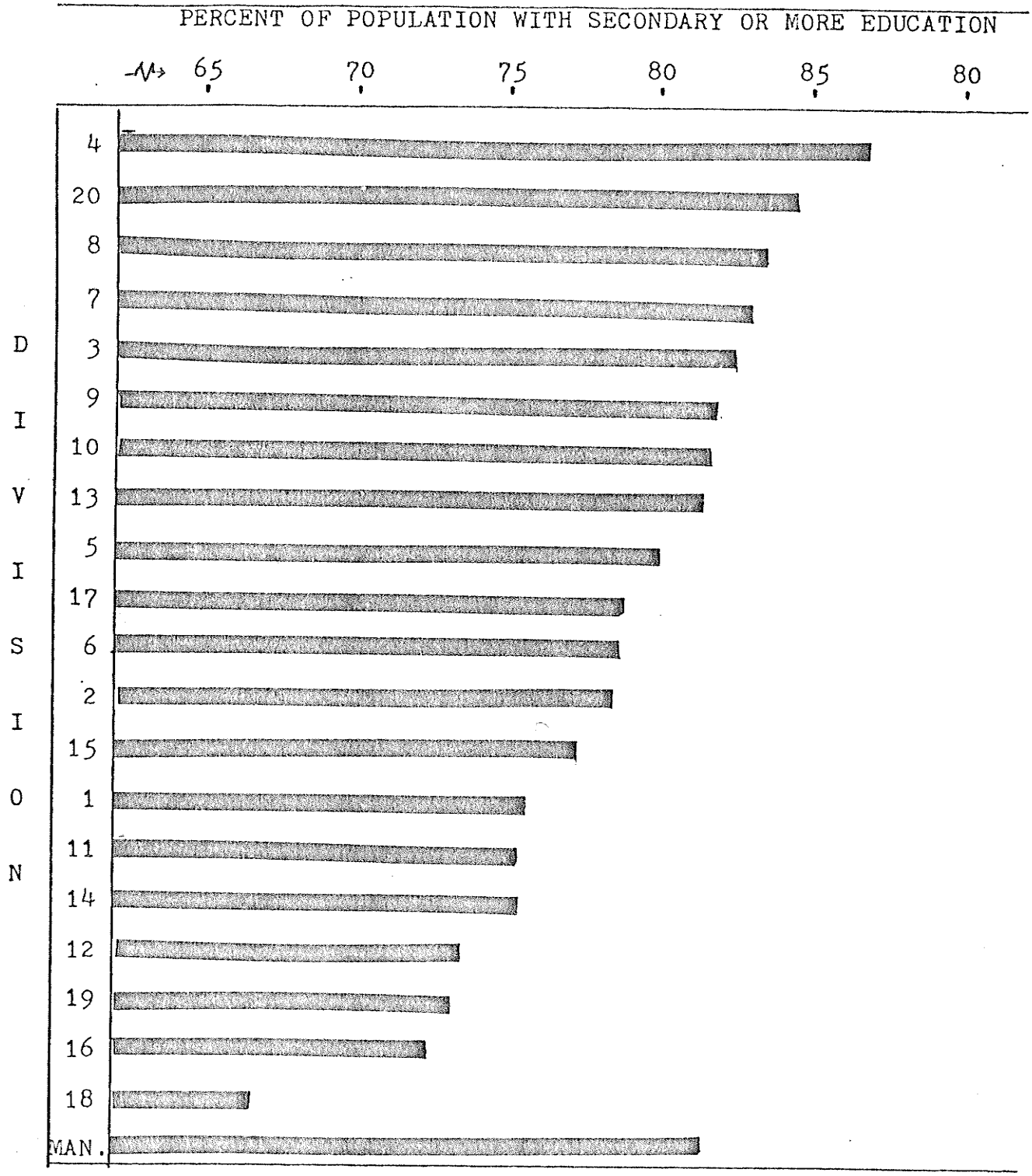
FIGURE 10

Rank order of proportion of population five years or older with secondary or higher education, 1961.



Source: 1961 Census of Canada, Schooling, Cat. No. 92-557.

FIGURE 11
Rank order of proportion of population five years or older with secondary or higher education, 1971.



Source: 1971 Census of Canada, Population by School Attendance and level of Schooling, Cat. No. 92-764.

TABLE 8

Population Counts for the Interlake Area, 1961, 1971 and 1976.

Subdivision	Population 1961	1971	1976
Armstrong	2,907	2,298	1,992
Bifrost	2,909	1,986	1,912
Coldwell	1,731	1,589	1,563
Ericksdale	1,173	1,066	1,003
Fisher	4,206*	3,463**	3,380
Gimli	3,168	2,709	2,244
Grahamdale	2,697	2,700	2,235
St. Laurent	1,760	1,326	1,253
Siglunes	1,619	1,580	1,604
St. Andrews	5,326	5,865	6,724
St. Clements	5,247	5,047	5,650
Rockwood	4,872	5,341	5,900
Rosser	1,751	1,171	1,256
Woodlands	2,346	2,258	2,532

*Non-adjusted figure
**Adjusted figures due to boundry changes.

Source: 1961 Census of Canada, Population, Divisions and Subdivisions. Cat. No. 92-534.

1976 Census of Canada, Population: Preliminary Counts, (Table 2).

Interlake (Division 12) ranked 17th from the top (fourth poorest) with less than 20 per cent of the proportion of population five years or older with secondary or higher education. However, rural Manitoba districts have been receiving assistance from the government in order to raise their standard of schooling. Schools have been centralized and budgets have been expanded to facilitate increased education services and quality. However, in 1971 (Figure 11) Division 12 remained fourth from the bottom in comparison to the other divisions with respect to the proportion of the population five years or older with secondary or higher education. It is true that the absolute percentage of level of the population with a secondary or better education has increased from less than 20 per cent in 1961 to slightly more than 73 per cent in 1971. Relatively speaking, however, the Interlake (Division 12) has not improved in this category over the ten year study period. What Nelson (1964) stated about the educational standards of the Interlake in 1961: 'The fact is that by comparison with other sections of the province, all is not well educationally in the upper Interlake', (pg. 42), holds true in 1971.

4.8 Housing Conditions

The quality of housing is of prime importance in assessing the general well being of a region and as a factor in human welfare. The data presented are approximations of principal housing indicators that attempt to take account of the effects of changing economic and social conditions on housing adequacy. Four indicators were used to test housing welfare in Manitoba. The first is the proportion of occupied

dwellings without running water, the second is the proportion of occupied dwellings with inside flush toilet, the third is the per cent of non_farm dwellings valued at less than $3,000 and the fourth is the crowding index. The data are based upon all dwellings, farm and non-farm.

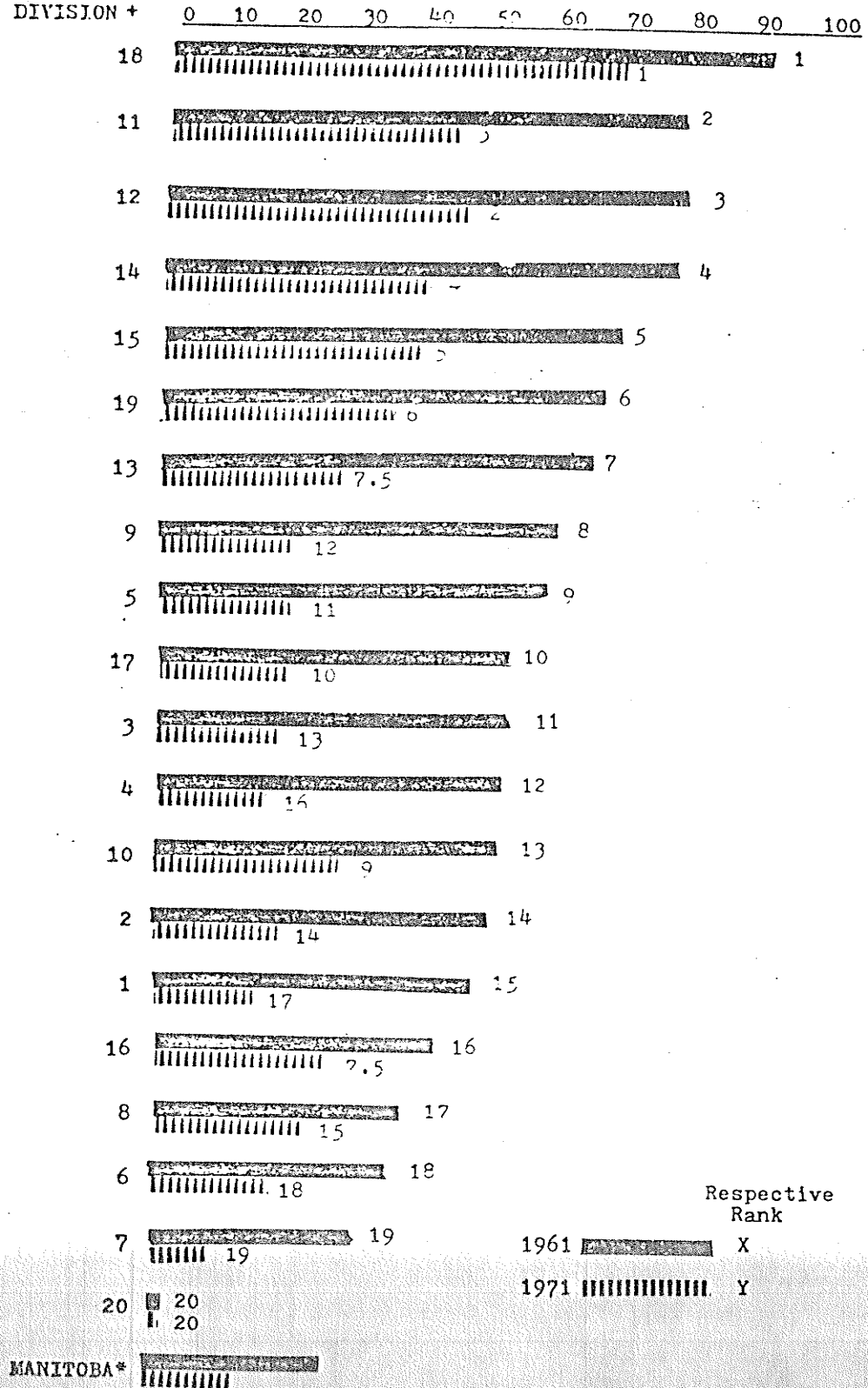
The majority of rural farm people in Manitoba have the service of electricity, which is readily available at reasonable prices. Telephones service a high proportion of the rural residents. All weather roads are available throughout the province, except for the northern, sparsely settled areas. Isolation and lack of communication is by no means the problem it was in earlier settlement days.

4.8.1 Proportion of Dwellings with Running Water

In a home, a major convenience of modern life is running water. North American farm homes have fared poorly on this item. In 1961 the majority of the divisions reported more than half the occupied dwellings with running water in the province, in 1971 Division 12 ranked second lowest, a decrease in relative position, for this category. Table 9 shows the rate of change at which occupied dwellings are installing running water. Division 12 ranks 11th (below average) in this category. Division 4 and 9 have the greatest improvement of running water in occupied dwellings. Divisions 9 and 5 have subdivisions which form a proportion of the Interlake which scored respective ranks of 1.5 and 6.5 in this category. The promimity of Division 9 and 5 to Winnipeg may have had an influence on the greater change in the occurrence of running water in occupied dwellings than that in Division 12.

FIGURE 12

Occupied Dwelling Without Running Water (Percentage)



Percent and respective rank (H-L) of occupied dwellings without running water by census division, 1961, 1971.

* Manitoba not included in ranking.
+ See Appendix A.

Source: 1961 Census of Canada. Housing, Cat. No. 93-525, Table 36. 1971 Census of Canada. Housing, Bath and Toilet Facilities. Cat. No. 93-735, Vol. II - Part 4, Tables 2.

TABLE 9

Rank on Change of Percentage of Occupied Dwellings with Running Water, by Census Division, 1961, 1971.

DIVISION	A		%	Rank (H-L) on %
	1961	1971	Change	
1	51.7	85.7	34.0	8
2	50.5	84.3	33.8	9.5
3	46.9	82.7	35.8	5
4	47.2	85.2	38.0	1.5
5	43.4	77.9	34.5	6.5
6	70.3	87.5	17.2	17
7	81.3	94.7	13.4	19
8	61.7	84.6	22.9	15
9	40.6	78.6	38.0	1.5
10	48.2	75.0	26.8	14
11	24.1	58.6	34.5	6.5
12	24.2	56.1	31.9	11
13	37.2	74.5	37.3	3
14	25.9	62.1	36.2	4
15	30.8	64.6	33.8	9.5
16	60.0	74.5	14.5	18
17	46.1	77.4	31.3	12
18	8.9	31.6	22.7	16
19	37.0	66.4	29.4	13

A = Percentage of occupied dwellings with running water.

4.8.2 Proportion of Dwellings with Flush Toilets

Without running water, homes cannot be equipped with modern plumbing facilities. The ranking of divisions having inside flush toilets in homes is shown in Figure 13. In 1961 and 1971 almost 100 per cent of the homes in Division 20 reported having flushing toilets. In 1961 Division 12 was fourth from the bottom and sixth from the bottom in 1971, with a percentage of less than 50. Table 10 shows the rank of change of percentage of occupied dwellings with inside flush toilets by divisions for the years between 1961 and 1971. Division 12 ranks sixth from the bottom in this category with Division 3 having the greatest change over the ten year period.

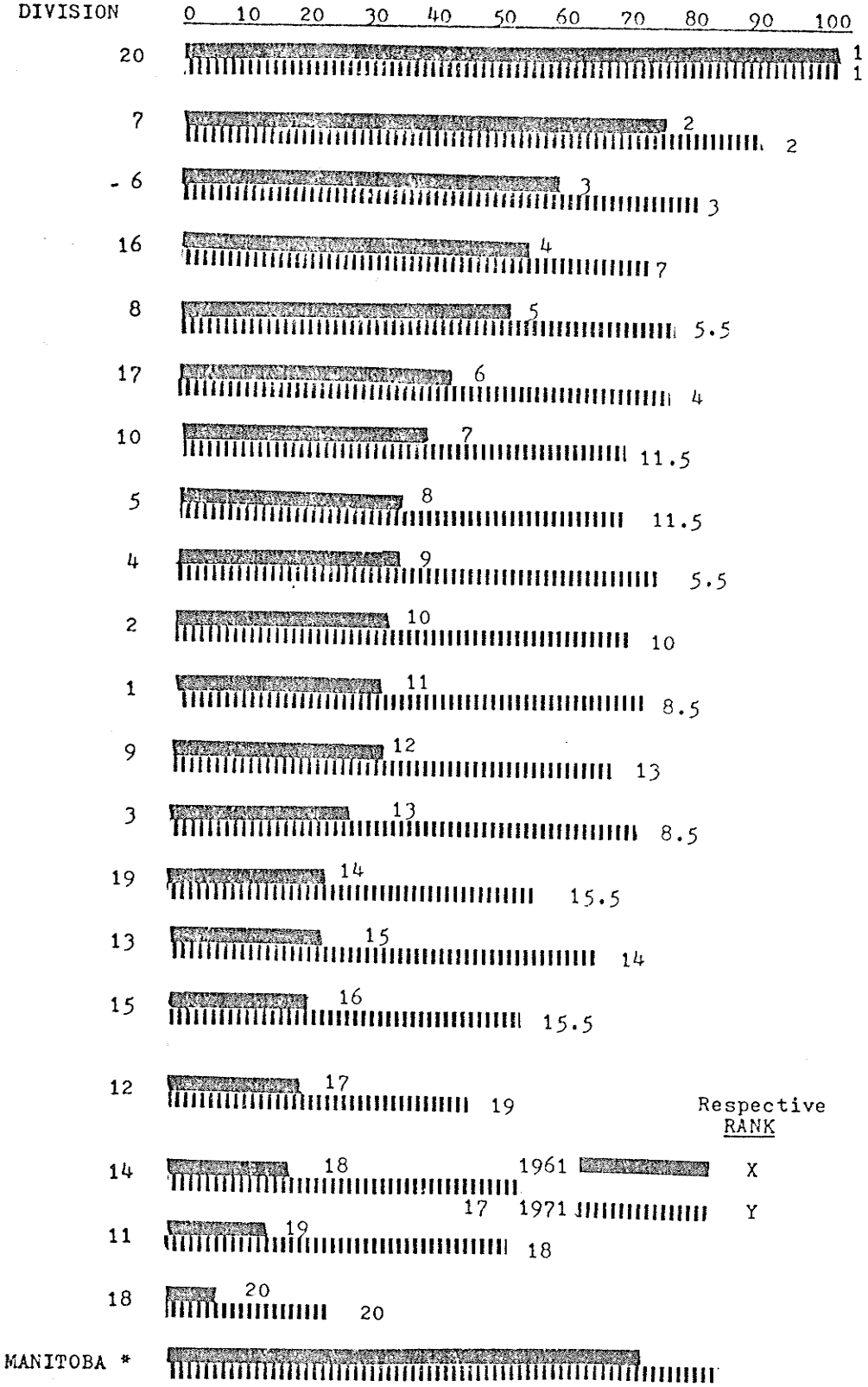
4.8.3 Proportion of Non-Farm Dwellings Valued Less Than $3,000

Figure 14 shows the comparison of the percentage of all non-farm dwellings, by census division, valued less than $3,000, in 1961 and 1971. In 1961 Division 12 had the second highest percentage of its non-farm homes valued less than $3,000. In 1971 Division 12 rank improved to four point five (equal to Division 13), having approximately 20 per-cent of its farm homes valued at less than $3,000. Some relative improve-ments have occurred for the Interlake in this category. However, much more improvement is needed. Nelson's observation (1964) of the Interlake would hold true for 1971:

> It would be difficult to over-state the impor-tance of housing on the morale of a population, particularly the younger ones. We have noted earlier the high rate of migration of young females from the Interlake. Although we are not justified in drawing any conclusions at present in regard to the motives for this

FIGURE 13

Inside Flush Toilet (PERCENT)



Percent and respective rank (H-L) of occupied dwellings with inside flush toilet, by census division, 1961, 1971.

*Manitoba not included in Ranking

Source: 1961 Census of Canada, Housing, Vol. 2, Part 2, Bulletin 2.2-3, Table 40.

1971 Census of Canada, Housing and Bath Facilities. Vol. II, Part 4, Cat. No. 93-735, Table 7.

TABLE 10

Rank on Change of Percentage of Occupied Dwelling with Inside Flush Toilet, by Census Division, 1961, 1971.

DIVISION	A		%	Rank (H-L) on
	1961	1971	Change	%
1	30.4	71.9	41.5	4
2	32.5	70.5	38.0	5
3	28.0	72.4	44.4	1
4	32.9	76.3	43.4	2
5	34.7	69.3	34.6	9
6	59.5	79.9	20.4	17
7	73.2	91.0	17.8	19
8	49.6	76.1	22.0	15
9	30.4	67.1	36.7	8
10	38.9	68.5	29.6	13
11	14.3	52.0	37.7	7
12	17.8	47.3	25.9	14
13	23.3	66.3	43.0	3
14	17.3	55.1	37.8	6
15	22.2	56.0	33.8	10
16	54.7	74.2	19.5	18
17	43.2	73.0	29.8	12
18	5.6	26.1	20.5	16
19	23.6	55.8	32.2	11

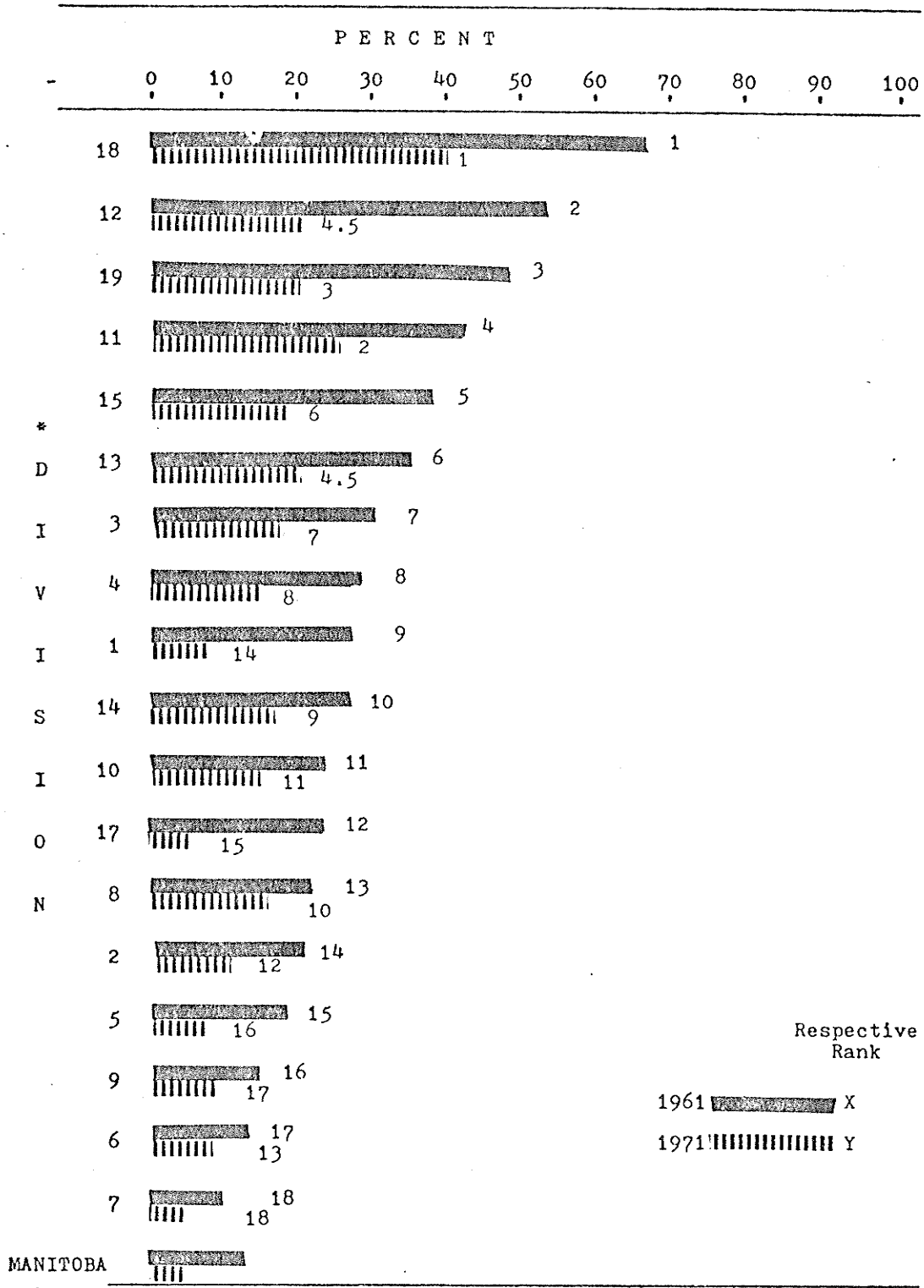
A = Percentage of occupied dwellings with inside flushing toilets.

Source: 1961 Census of Canada. Housing Vol. 2, Part 2, Bulletin 2.2-3, Table 40.

1971 Census of Canada. Housing and Bath Facilities. Vol. II, Part 4, Cat. No. 93-735, Table 7.

FIGURE 14

Percentage of non-farm dwellings valued at less than $3,000, by census division, 1961, 1971.



*Divisions 16 and 20 not included.

Source: 1961 Census of Canada. Housing, Values and Rents. Table 61 Cat. No. 93-528.

1971 Census of Canada. Housing, Values and Rents. Table 35 Cat. No. 93-732.

> migration, it is logical to suppose that poor housing was a factor. When a girl from the Interlake can obtain a job in town and live in a place where there are fully equipped bathrooms, along with other amenities of modern living, this fact must reinforce whatever other motivation to migrate she might have.' (pg. 49).

4.8.4 Crowding Index

Housing quality, as measured by the crowding index, has generally improved in Canada in recent years. In Canada, the average number of persons per room declined from .75 in 1951 to .74 in 1961 to .64 in 1971. This change is equivalent to a four member family having an extra room.

The crowding index for Manitoba in 1961 and 1971 was calculated in Figure 15. In Division 12 the crowding index decreased from .99 in 1961 to .79 in 1971, representing a change of 20.2 per cent. In 1971 Division 16 and 18 were the only divisions that had a larger crowding index than Division 12. However, Division 12 had the third greatest percentage change for this indicator.

The Interlake area (Division 12) crowding index fell within the 1971 acceptable level of 1.0 or less as recommended by the Economic Council of Canada. In relation to other regions of the province the Interlake scored poorly in the category.

FIGURE 15

Crowding Index - Average Number of Persons per room, by division, 1961, 1971.

Division*	Crowding Index 1961	1971	Percentage Change
1	.90	.75	-16.7
2	.76	.64	-15.8
3	.67	.59	-11.9
4	.64	.54	-15.6
5	.84	.69	-17.9
6	.77	.66	-14.3
7	.69	.60	-13.0
8	.71	.60	-15.5
9	.73	.66	- 9.6
10	.65	.59	- 9.2
11	.72	.63	-12.5
12	.99	.79	-20.2
13	.70	.61	-12.9
14	.84	.66	-21.4
15	.78	.68	-12.8
16	1.22	.93	-23.8
17	.76	.64	-15.8
18	.97	.83	-14.4
19	.88	.75	-14.8
20	.73	.61	-16.4
MAN.	.76	.65	-14.5

* See Appendix A

Source: 1961 Census of Canada, Housing, Rooms per Dwelling. Table 31, Cat. No. 93-524.

1971 Census of Canada, Housing, Number of Persons per Room. Table 21. Cat. No. 93-730.

CHAPTER 5

SUMMARY AND CONCLUSIONS

The aim of this practicum was to determine if the social and economic problems identified in the Lowry Nelson Study (1964) of the Interlake Region, had been alleviated. With this basic interest in mind, the following specific study objectives were developed:

1. Update the Lowry Nelson Study (1964).
2. Compare the pre-plan Lowry Nelson Study to a similar study after the Interlake Plan had been in operation: determining whether the changes observed are of an absolute and/or relative nature.
3. Determine whether socio-economic change in the Interlake region had succeeded in reducing the regional disparity noted in Census Division 12.

The research study period extended from 1961 to 1971. Data on socio-economic indicators were collected for the 20 census divisions in Manitoba. The primary source of data was Statistics Canada. Study results were divided into two sections: economic indicators and social indicators.

5.0 Summary of Funding

1. Incomes for persons not attached to a family improved from 1961 to 1971 within the Interlake by 96.3 per cent (average of 929 constant dollars per person) and in comparison to other census divisions in Manitoba between 1961 and 1971. The rate of increase in this category was the second

greatest within all the census divisons in Manitoba.

2. Family incomes increased within the Interlake by 68.3 per cent (1,818 constant dollars per family). In comparison to other census divisions in Manitoba, the Interlake's relative rank in 1964 of 16th improved to 13th position for highest average family income.
3. Between 1961 and 1971, Interlake farm size increased by an average of 239 acres with a corresponding increase in capital farm value of 54.7 per cent (average of 22,317 constant dollars per farm).
4. Between 1961 and 1971, two-thirds of the farm land in Division 12 remained unimproved. This represents the lack of good farm land within the respective region.
5. Division 12, when compared with other census divisions for the following agricultural factors:
   - average value of farm (real and constant dollars)
   - average value per acre (real and constant dollars)
   - average value of land and buildings per farm (real and constant dollars)
   - average value of land and buildings per acre (real and constant dollars)
   - percentage of all farms with sales over 2,500 dollars, and
   - farm percentage with sales of 2,500 to 3,749 dollars, the ranking remained relatively unchanged between 1961 and 1971
6. In 1961 the Interlake ranked twelfth for the number of tractors per 100 farms and in 1971 ranked first with an average of 2.2 tractors per farm.

7. The Interlake population with secondary or better education increased from less than 20 per cent in 1961 to more than 73 per cent in 1971. However, when compared with other census divisions within the Province the Interlake relative standing for the above indicator remained unchanged between 1961 and 1971.

8. Between 1961 and 1969, the number of Interlake commercial fishermen on Lake Winnipeg declined by 30 per cent, on Lake Manitoba by 39 per cent and on Lake Winnipegosis by 52 per cent. Interlake fishing revenue was two million dollars less in 1969 than in 1962.

9. Between 1961 and 1971 Division 12, when ranked for the percentage of non-farm homes valued less than 3,000 dollars, remained in the lower quartile of all census divisions.

10. Division 12 ranked in the lower quartile of all divisions between 1961 and 1971 for the percentage of occupied dwellings with running water.

11. In 1971 Division 12 had the third highest crowding index in Manitoba (.79 persons per room). However, Division 12 had the third greatest percentage change (20.2 per cent) for improvement in this category over the ten year study period, indicating an improvement in the housing conditions in the Interlake.

5.1 Conclusions

It is important to remember that the objectives of the FRED program were economic and social in nature. The indicators examined in this study revealed that economic and social change in the Interlake region between 1961 and 1971 had suceeded in reducing the regional disparity noted in Census Division 12 by the Lowry Nelson Study, 1964.

With regards to Division 12's relative rank for the average individual and family income and average farm size and value increased from 1961 to 1971. Average income and average farm size and value are reliable social and economic indicators, and are the most reliable indicators examined in this study. The increased relative rank for average income and average farm size and value indicate an improvement in the social and economic conditions within the Interlake region.

The analysis of the indicators of farm size showed that larger Interlake farm sizes revealed an extensification of farming practices (rather than intensification) corresponding to the increased farm incomes between 1961 and 1971. The increase in the capital value of Interlake farms is a good index of agricultural improvement. The Interlake had the third highest ranking of all census divisions in the Province when improvement of crowding index was analysed, representing an improved social and economic situation. The analysis revealed that the average number of tractors per farm in the Interlake increased between 1961 and 1971, representing a technical change in farm management and not necessarily representing an increase in capital investment as the tractors in the Interlake in 1971 on the average were of a smaller horse power and older than tractors in other census divisions in the Province.

The relative position of Census Division 12 has decreased from 1961 to 1971 on some criteria. Indicators examined in this study that did not reveal improved social and economic well being within the Interlake were the ranked level of education and commercial fishing.

The unchanged rank for Division 12 for the level of education could be explained by the fact that education funds were equally apportioned throughout the Province between 1961 and 1971. The FRED program did not specifically concentrate on education within the Interlake and education was not a stated objective of the FRED program.

Many Interlake commercial fishermen were employed in other industries. Younger potential fishermen prefer employment which provides a secure income, regular hours, and a better working environment. Commercial fishermen are often away from home for extended periods of time and often work in extremely cold weather, making the industry unattractive to newcomers.

5.2 Recommendations Arising From This Study

Further research towards analysis of the social and economic situation in the Interlake, utilizing 1976 Census of Canada data (when available). The research would up-date the present study, illustrating the absolute and relative changes that have occurred from 1961 to 1976 in the Interlake region.

5.3 Appropriateness of Indicators

An indicator is something that points out something else.

When a social or economic variable is used as an indicator, it is not an indicator of itself and it is not an 'operational definition' of that to which it points. The accurate temperature given by a clinical thermometer is not an indicator of body temperature - it defines (is) body temperature; but it is an indicator of sickness.

The selection of a social or economic indicator involves a qualitative decision (based upon what is trying to be evaluated) on the part of the researcher. The qualitative selection of a variable to be used as an indicator leads to a quantitative analysis of that variable. The appropriateness of an indicator is directly related to the qualitative judgment of the individual researcher who chooses the indicator (Dr. Framingham, Department of Agricultural Economics, University of Manitoba - Personal Communications).

Nelson, using qualitative judgment, selected measures that he thought would accurately indicate the social and economic well being of the Interlake, relative to other census regions within the province. The selection of indicators was based on qualitative judgment. Therefore, the assessed appropriateness of an indicator may vary from one researcher to the next. It was beyond the scope of this study to make a detailed examination of the appropriateness of each social and economic indicator used jointly by Nelson and this research.

Indicators in this study were not of equal weight. An example was that the number of tractors per farm in the Interlake was the highest in Manitoba in 1971. It was also true that the average horsepower of tractors in the Interlake was less than tractors in other regions. Therefore, 'tractors per farm' does not accurately indicate the relative

standing of the Interlake to other regions of the Province.

5.4 Limitations of the Study

The data used in this study was primarily from 1961 and 1971 Canada Census. The census questionnaires were mailed out to 100 per cent of the population. The respondents were asked to complete the questionnaires on June 1st and return them by mail. The sampling procedure used was representative for June 1st of the two respective dates. The census data used in this study was basically a 'snap shot' of how things were on the two specific days (June 1st 1961, 1971) ten years apart; failing to explain any variance in social or economic development between the two respective dates. The data cannot explain factors that influenced change (or the lack of change) which occurred during the ten year interim.

A further limitation to this study was that many of the FRED Interlake development programs had not been introduced prior to 1971. Any social or economic consequences of the programs introduced during or after 1971 would not be represented in the 1971 census or in the findings of this report.

5.5 Concluding Comments

The purpose of Chapter 4 of this report was to analyze social and economic indicators in the Interlake and other Manitoba census divisions in 1961 and 1971 and the changes that have occurred between the two respective dates. In doing this, it was necessary to analyze data from the 1961 and 1971 Census of Canada. Comparisons on a number of social

and economic items were made upon the 20 census divisions and the nine subdivisions of Division 12, three in Division 9 and two in Division 5. The results revealed that Division 12 had an improved standing on practically all indicators. Relative improvements were usually not as large as absolute changes.

The Interlake was not the only or the most critical problem area of the Province in 1964. In the tables and charts presented, there was always one division or more that ranked lower than the Interlake. There are no areas of Province or of the Nation, where problems, as decribed in this study, do not occur to a greater or lesser degree. When there is a concentration of social and economic problems in an area, attention becomes focused on it (as was the Interlake). The question is 'can development programs such as FRED alleviate the social and economic problems that were found to exist in the Interlake during the early 1960's?' The relative change indicated by social and economic measures indicated the success the FRED program had in achieving the regional development policy objectives. Without the FRED program the Interlake would have ranked lower in many of the indicators examined.

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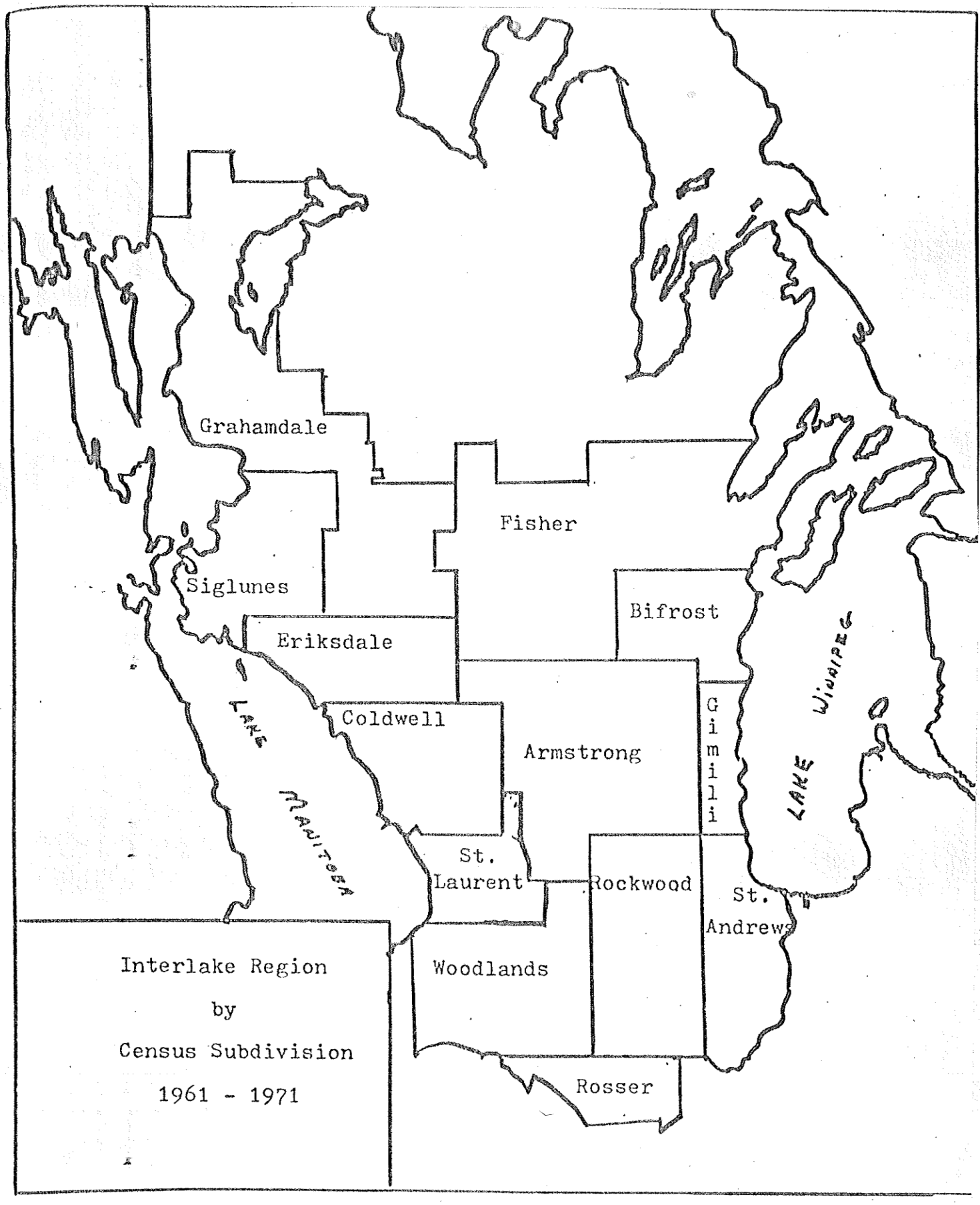
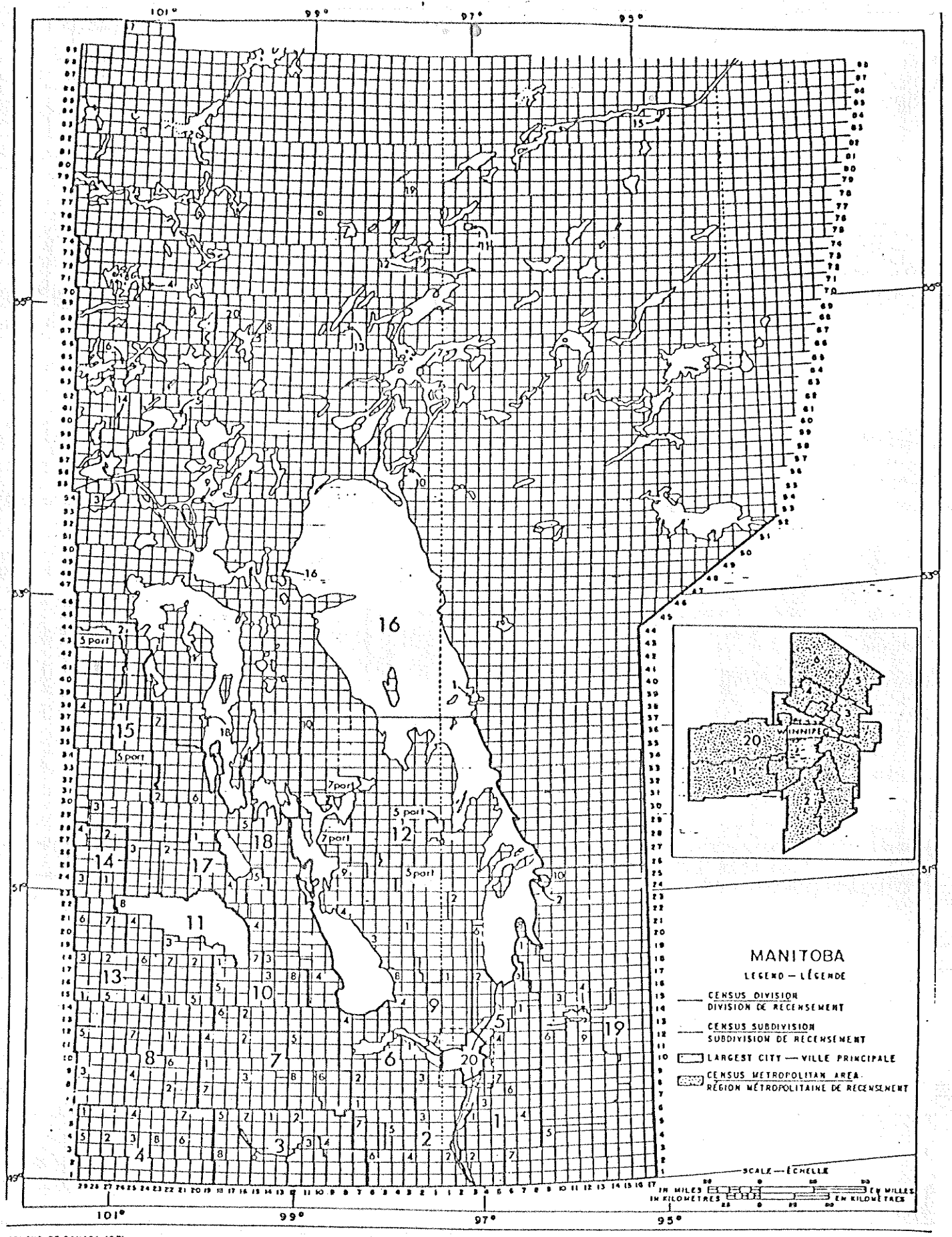
APPENDIX A

The ranking of Division 12 was emphasized in Nelson's study (1964) because Division 12 was 'clearly the section of the Interlake where maladjustments are most severe', (pg. 1) and because all of Division 12 laid within the Interlake region. Likewise this practicum emphasized the relative position of Division 12. Map 5 shows the Interlake study area by census subdivision. Map 6 shows Manitoba by census divisions.


Grahamdale
Fisher
Siglunes
Bifrost
Eriksdale
Coldwell
Armstrong
Gimili
St. Laurent
Rockwood
St. Andrews
Woodlands
Rosser
LAKE MANITOBA
LAKE WINNIPEG
Interlake Region
by
Census Subdivision
1961 - 1971

MAP 5



CENSUS OF CANADA, 1971

RECENSEMENT DU CANADA, 1971

MAP 6

GLOSSARY OF TERMS

Crowding Index is the number of persons per room in a household.

Family. A family consists of a husband and wife (with or without children) who have been married, living in the same dwelling. A man or woman living with a ward or guardianship child under 21 years of age and for whom no payment was received, consists a family.

FRED. The fund for Rural Economic Development set up by the federal government to provide financial and programing assistance to the development of the area.

Income (Total) is all the income received from wages and salaries, farm operations, business or professional practices, government old age pensions, family and youth allowances, other government payments, retirement pensions from previous employment, bond and deposit interest and dividends, other investment sources and other sources for the respective year reported.

Income (Family) refers to the sum of all total incomes received by family members 15 years of age and older.

The Interlake Development Plan refers to a Federal-Provincial Agreement designed to increase the level of income and the standard of living of the people residing in the area.

Level of Living - Standard of Living - terms used synonymously in this report; both referring to 'components' of the quality of life. Measurements of the overall level of living of a region is very difficult for many

reasons including:

1. Adequate quantitative measures for all of the various components of the level of living are not available.

2. There is no satisfactory method of assigning weights to the individual components in order to obtain a composite index of the level of living.

3. The contribution of sociology, political science and other disciplines to the assessment of levels of living are not sufficiently advanced to permit their incorporation quantitatively, (Bollman, R.D. and MacMillan, J.A., 1972, pg. ii).

Due to the above obstacles, this study did not attempt to measure the overall level of living. The primary purpose was to illustrate changes that had occurred in various components of the level of living.

Newley Broken Lands were considered, for census purposes, to be an area of land that was first ploughed in 1970. Areas of land that were once broken but have been idle for a number of years and then rebroken in 1970 were not included.

Persons Not Attached to Families are considered, for census purposes, to be persons living alone, or living with an unrelated individual, or living with relative but not in a husband-wife or parent-child relationship. For census purposes, a child who has been married and is living with a parent(s) is considered as a person not attached to a family due to the marriage.

Population (Urban). For census purposes urban is defined as the population living in:

1. incorporated cities, towns and villages with population of 1,000 or over;

2. unincorporated places of 1,000 or over or having a population density of at least 1,000 per square mile;

3. built-up fringes of 1. and 2. having a minimum population of 1,000 and a density of at least 1,000 per square mile.

Population (Rural). All the remaining population.

Secondary Schooling refers to attendance, at any time in a junior high school, high school, vocational high school, technical high school or collegiate institute.