CONSIDERATIONS INVOLVED IN DEVELOPING

A VALID COMPARISON

OF FARM AND NON-FARM INCOMES IN CANADA

1926-1961

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ABSTRACT

Considerations Involved In Developing A Valid
Comparison Of Farm And Non-Farm Incomes
In Canada, 1926-1961.


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University of Manitoba, 1965


A knowledge of the relative differences between farm and non-farm

incomes is basic for agricultural policy formulation.  For Canada, in par-

ticular, no objective evidence on this topic is available.  It is custom-

ary for Canadian investigators and policy formulators to rely on ratios

derived by certain unrefined techniques.  In many instances such tech-

niques do not furnish realistic incomes in the farm and non-farm sectors.

The present investigation was undertaken with a view to satisfying this

deficiency.  More specifically the objectives of the study are to measure

the size of the differential between farm and non-farm incomes, to identify

the major problems of farm incomes, and to evaluate the relationship be-

tween farm and non-farm incomes.

In this study, the methodological framework for the comparison of

farm and non-farm incomes was guided by the objectives of agricultural

policy formulation.  The whole set of comparisons of the two incomes was

divided into two parts: Comparisons which reflect the efficiency of re-

source use in the two sectors, and those which compare the relative level

of well-being of the individuals.

The analysis of the farm and non-farm income differential is made

by dividing the non-farm sector into five industrial groups.  In order to

investigate the nature of the intra-agricultural income disparity, the farm sector is studied by classifying it according to provinces, size of farm business, and type of enterprises. Labor force in a sector is divided into two major categories: Wage earners, and self-employed workers. Size of labor force in the two sectors is adjusted for the differences in age structure, proportion of female workers, and hours of work in a workweek.

The study reveals three major problems of farm incomes: (1) Farm incomes tend to remain at a low level relative to non-farm incomes, (2) That a wide income disparity within the agricultural industry exists, and (3) Agricultural incomes are more unstable intertemporally.

The tendency of farm incomes to be low, even in the long run, differs according to accounting technique used to estimate the incomes of farm and non-farm sectors. For the period 1951-60 the ratio of Farm:Non-farm incomes (expressed as percentage) varied between 25.0 percent and 110.0 percent. Relative farm incomes when measured from efficiency point of view were lower than when they were measured from welfare point of view. The study indicates that the employment of workers and the relative price movement of products prices for the two sectors are responsible for a considerable part of the disparity between these incomes. Capital investment in various provinces, and the extent to which farmers supplement farm incomes with income from other sources explain the intra-agricultural income disparity. While making comparisons of relative welfare of persons many non-economic factors are found to interact with the income levels. Capital accumulation on farms, lower cost of living, sociological and psychological

factors are indicated to be relevant factors which interact on the individuals along with the level of incomes.

# ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

It is believed that people in various occupations should have

the opportunity to earn incomes comparable[1] to people in other parts

of society. A long standing issue in Canada is whether farm people

enjoy a reasonable level of incomes relative to that in the rest of

the economy. Two opinions, almost diametrically opposed, have been

put forward. Some observers believe that relatively speaking, farmers

are poor; others present arguments which imply the opposite. Opinions

also differ on the issues related to regional differences in agricul-

ture. Too frequently national policies are biased by certain local

and regional issues.

Many lengthy discussions have taken place on the issue of

farmers' relative position in Canada, but, so far, no unanimous

and widely accepted conclusions have emerged. It leaves one with a

suspicion that perhaps previous attempts have not been completely

objective, and a new study on this issue should be undertaken.

A study of income comparisons provides the basic framework

within which the agricultural industry can be organized on a sound

and progressive basis. Better knowledge of comparative incomes in

various occupations facilitates the resource adjustment process of

agriculture and, in turn, that of the whole economy. Formulation of

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[1]In economic theory this term "comparable" is used to desig-
nate rewards accruing to persons having similar efforts and skills.

policies consistent with resource mobility demands that it must be based on a knowledge of sectoral incomes, evaluated comparably.

A comparison of farm and non-farm incomes also provides some indication of the strategies which should be adopted in maintaining the level of economic growth. The relative level of incomes, which can serve as a basis of comparing the existing level of efficiency in various sectors of the economy, will thereby suggest the possible areas where adjustment of resources will lead to a higher gross national product. Finally, income comparisons will also suggest the path through which general equilibrium in an economy can be approached.

The present investigations are aimed at providing a sound basis for developing agricultural income policies suitable for the resource adjustment process of the industry. Its specific objectives are five-fold: (1) to suggest an objective basis for income comparisons; (2) to estimate the extent of existing disparities in farm and non-farm incomes; (3) to examine the various factors associated with this income disparity; (4) to isolate the crucial farm income problem that requires policy considerations; (5) to examine the basic proposition that farmers have not received a fair share of the increasing economic prosperity in Canada.

In this study an analysis was made of labor income in the farm and non-farm sectors. Then a detailed examination was conducted of the farm income derived from farming and all other sources. In addition, intangible income issues were studied to determine whether a fair relationship exists between the incomes of the two sectors.

An analysis of non-farm incomes was also made by dividing the sector into five industrial sub groups.

Several conceptual and empirical problems were encountered in establishing a valid basis for the income comparisons which were developed in this study. However, such a basis is necessary for guiding agricultural policies in Canada.

CHAPTER II

NATURE AND SCOPE OF THE PROBLEM

The contention that the agricultural industry in Canada is at

a disadvantageous position relative to other sectors of the economy

is of interest to economists as well as to farmers and their organiz-

ations. Some observers have argued that the incomes of farm people

are relatively low , others have even proceeded as far as to say that

farm people are generally regarded as second class citizens,[1] and that

farming fails to give status to the individual in the eyes of other

people.[2] It is also very frequently advocated that farmers are not in

a position to get a fair share of the national income, and, as they are

entitled to such a share, some action should be taken to improve their

relative situation in the national economy. The notion of equality for

agriculture has influenced policy makers to place a major emphasis on

agricultural support programs. Schultz pointed out that the major

beliefs in the U.S.A with respect to agricultural policies are that:

> "...agriculture is at a considerable disadvantage in the way
> a modern economy develops, that it is burdened somewhat by
> monopoly elements in business and in labor; that it bears

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[1]This view has been expressed to the effect that the occupation
does not enjoy the respect accorded to other pursuits.

[2]H. DeGraff,"Notes on Can a Fair Relationship be Established
Between Agricultural and Non-Agricultural Incomes?" The Report of the
first Canadian Agricultural Economics Society Workshop, Guelph, 1956.

an undue share of the 'Costs of Rearing''the youth of the country
and, for these and other reasons, agriculture has certain moral
claims on the rest of the national community."[3]

In Canada, the Royal Commission on Canada's Economic Prospects, observed,

with respect of the farm income situation, that:

"...the real incomes (goods and services procured from production
either directly or by exchange) of those engaged in agriculture,
have, over the long run, tended to be low in comparison with
incomes earned in other occupations; that in recent years farm
incomes have been falling while other incomes have been rising..."[4]

This wide-spread differential in the incomes of persons on farms

and those in the non-farm sector, has been one of the most important

reasons why many policies have been developed for the agricultural

industry.  In Canada, the major premises for such policies are that a

stable agriculture is in the interests of the national economy, and

that farmers, as a group, are entitled to a fair share of the national

income.[5]  Boulding's analysis of the farm income problem, however,

indicates a clear opposition to such policies.  According to him, too

many agricultural policies in the past have been based on an essentially

false argumentation.[6]  His logic can be demonstrated as follows:

"The major premise, with which most of us would agree, is
that the poor should be helped.  However, the minor premise

[3]T. W. Schultz, Production and Welfare of Agriculture (New York
The MacMillan Company, 1950) p. 10.

[4]W. M. Drummond and W. MacKenzie, Progress and Prospects of
Canadian Agriculture, Royal Commission on Canada's Economic Prospects,
Queen's Printer, p. 352.

[5]Dominion Bureau of Statistics, Canada Year Book, 1962, Ottawa,
p. 383.

[6]K. E. Boulding, "Economic Analysis and Public Policy", Canadian

and the conclusion - farmers are poor, therefore, farmers should be helped - are open to searching questions. The truth is that some farmers are poor, and we might well conclude from this that some farmers should be helped. But some miners and some garment workers and some retailers and some unemployed workers are poor also, while some farmers are by no means poor."[7]

On the basis of this logic, Boulding concluded that:

"One cannot help suspecting that great deal of so called 'Aid to agriculture' is, in fact, a great political bluff engineered by the wealthier farmers, who are, of course, the more politically active. They obtain general support for the policy on the grounds that farmers are poor, but the assistance goes not specifically to the poor farmers but to all, indeed in many instances it has gone to the rich farmer rather than to the poor."[8]

The contention that the equality of farm and non-farm incomes should be the basis for public policies, in order to obtain a state of economic justice in the economy, has been viewed differently by various groups. For farmers and farm politicians it is a matter of justice in distribution, i.e., demand for a fair share of the national income. In a recent memorandum submitted by the Canadian Federation of Agriculture to the Government of Canada, the farmers' viewpoint on this matter was presented as follows:

"...it is the general view of farmers that they continue to be disadvantaged, and indeed are increasingly disadvantaged; that the struggle for a living is hard and unrewarding to the farmer, though rewarding to the consumer and the economy."[9]

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Journal of Economics and Political Science, Vol. 13, No. 3 (August, 1947) Edited by H. G. Halcrow: Contemporary Readings in Agricultural Economics, (New York, Prentice-Hall, Inc.) 1955, pp. 195-202.

[7] Ibid. p. 196.

[8] Ibid. p. 196.

[9] Canadian Federation of Agriculture Memorandum, Farmers Income Position and Farm Policy. (Sept. 23, 1964), Ottawa.

Later on in the same memorandum, the Federation suggested that:

> "The basic expectation of people in this country, <u>fully justified</u>, is that their (farmers) incomes will regularly increase in real terms. ...Farmers have not been realizing this justified level of expectation, but it is one of the theses of this document that intensive examination of farm income experience, including the distribution of income is the best road to constructive policy."[10]

Apparently, what the Canadian Federation is proposing for Canadian farmers, is an agricultural policy which would entitle them to a fair share of total national income over a period of time.

A somewhat different approach to this problem of relatively low farm incomes is advocated by politicians. The problem of farm incomes as posed by many politicians is not only that of its low level. Rather, it is expressed in a very peculiar blend of low incomes and certain local issues. It has resulted in a major stress on the tendency of regionalism in agricultural policies in Canada. Such ideas can be demonstrated with the help of the following discussion on the farm income situation in Canada in a recent House of Commons debate.

> "This House regrets the failure of the government to take effective action in regards to eastern agriculture and in particular with respect to feed grain for eastern Canada and British Columbia so as to provide: (1) Stability of Canadian supply and price, and, (2) Opportunity for expansion of eastern production of feed grain. If there are any Maritime members they would agree that a definite regional policy should be evolved and put forward in the house to help the people in Maritimes and to meet the problems of declining incomes."[11]

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[10] <u>Ibid</u>.

[11] House of Commons Debates, Vol. 108, No. 67, First session, 26th parliament, Official Report, Monday, October 14th, 1963, (Ottawa: The Queen's Printers).

It is obvious that the demand in this case is not only for a policy for agriculture but a policy for a particular region which the member is inclined to accept as the most needy region.

The economist, on the other hand, recognizes the problem of unequal incomes for various occupations in a completely different form. He does not agree that the problem of low incomes is only that of the agricultural industry. According to him, many reasons can be advanced as to why the agricultural industry is at a relative disadvantage in a growing economy. For example, one of these causes, in the long run, rests on the continual decline of resources engaged in agriculture when the industry is under a technical revolution. Since a higher state of technical progress creates a need for movement of resources out of agriculture,[12] it is necessary in order that such adjustment of resources can take place, that the declining industry be less attractive.[13]

A simple evaluation of the views of farmers, farm politicians, and economists, can easily lead one to conclude that the issue of relatively low farm incomes is very controversial. Almost contradictory solutions

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[12]Most of the technical progress in the past has been through time-saving innovations. It means that, as an industry becomes more and more technically advanced, less and less labor will be used to produce the same total product. If the demand for the products of the industry does not increase to compensate for this resource replaced by the technology, it would result in a less potential employment of the resources. And, in order to keep an optimum state of resource allocation, it becomes necessary that some of these resources should move out.

[13]K. E. Boulding, The Skills of the Economists, (Toronto: Clarke, Irwin and Company Limited, 1958) p. 124.

to correct the agriculture's disadvantageous position have been proposed

by farmers and economists. Farmers hold that agricultural support programs

are the best solutions; whereas many economists suggest the movement of

resources out of agriculture, in order to attain an optimum combination

of resources in the economy.[14] If an optimum state of resource use among

different occupations is to be attained, a prerequisite of such adjustment

will be a relatively low level of incomes in the declining industry. It

would also obviously follow, as a direct consequence of this statement,

that equal income opportunities in all the occupations will impede the

process of adjustment of resources, in the case where a malallocation of

resources exists in the economy.[15] If the farmer's demand for a fair

share of the national income is accepted, it would mean that rewards of

economic progress[16] may not be reaped to the same extent, as would be the

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[14]However, Cochran's point of supply management cannot be disregarded. But from the point of view of solving the farm problem, both these arguments are consistent.

[15]If the incomes generated by the natural functioning of the economy are lower in any occupation, and, if by certain unnatural measures, incomes in all the occupations are equalized, then the resource owner in the naturally disadvantaged occupation will not like to transfer himself to another job, even though it is desirable from the point of view of income maximization in the economy.

[16]Economic progress has conventionally been defined as the rate of progress or increase in the domestic product in an economy. Boulding in his Principles of Economic Policy (Prentice Hall, Englewoods), has defined this term to mean the discovery and applications of better ways of doing things to satisfy our wants. The progress is at its maximum when resources are combined among various production processes in an optimum manner.

case under optimum allocation of resources. The question is really one
of making a compromise between retarding the rate of economic progress
for the sake of equitable distribution of incomes, as against the one in
which the economy enjoys the benefits of an optimum[17] allocation of
resources. In such a case, a decision has to be made about the ratio of
farm and non-farm income which should be maintained in the economy at a
particular point of time.

Bellerby[18] has put forward the argument that the ratio of farm and
non-farm incomes can be used as an instrument of policy. He stated that:

> "When any planning authority has reached a decision on the
> optimum size of agriculture, it must determine what income
> ratio between agriculture and industry will favor the attain-
> ment of the optimum."[19]

Bellerby's argument implies that a complete equality of monetary
incomes in an economy should not always be accepted as a basic premise
for policy formulation, rather a certain ratio between farm and non-farm
incomes, which will bring about a desired change in the economy, can be
set as the goal of agricultural policies. Such a ratio would be governed
by the stage of economic progress which the economy has attained, the
degree of maladjustment of resources, and other factors related to
resource allocation.

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[17]The term optimum can only be defined in the light of a certain
objective function. The optimum is said to be attained when the value
for the objective function is maximum.

[18]J.R. Bellerby, _Agriculture and Industry Relative Incomes._
(London: Macmillan and Co., 1956)p. 10.

[19]_Ibid.._p. 10

Before any such policy can be initiated, the existing disparity
between the farm and non-farm incomes must be known. It is amazing to
note that in Canada, many lengthy discussions have continued on this topic
with very little objective knowledge of the existing situation of farm
and non-farm income differentials. Furthermore, most of the existing
evidence differs widely in terms of definitions and measurements used.
Black feels that the common methods of reducing the total income to a
per capita basis in the farm and non-farm sectors, is not a valid approach[20]
and, if such methods are employed as an indicator of adjustments needed
in the economy, no results will be fruitful. It was recognized by a
working group of the 1963 Canadian Agricultural Economics Society Work-
shop, that the commonly used methods of income comparisons tend to
overstate the disparity and thus some refinements should be introduced.[21]
The core of the matter revolves around the questions of how the farm and
non-farm sectors in an economy should be compared so that the comparison
may lead to a basis for proper policy formulations.

Initiation of any agricultural policy requires that certain
criteria for the justification of such programs have to be devised. In
the case of income policies, these criteria can be deduced from the role

[20] J. D. Black, Societal Obligations to and of Agriculture,
Problems and Policies of American Agriculture, (Ames: Iowa State
University Press, 1959) pp. 63-79.

[21] The Economic Growth of Canadian Agriculture, Eighth Annual
Workshop Report, Canadian Agricultural Economics Society, (Edmonton:
University of Alberta) p. 81.

of incomes in the economy. Income in an economy has two important roles to perform; first that of giving incentives to resource owners to exert themselves in production processes; second, as a tool of purchasing power in the hands of families, leading to their well-being. These two functions have been developed further as the criteria for public policy. The first role, i.e., income as a source of motivation to resource owners, helps the economy in its resource adjustment process, and can be termed as an efficiency criterion for public policy. The other role, as it leads to the welfare of people, may be referred to as the welfare criterion. The distinction between the efficiency and welfare criterion for agricultural policies can be easily drawn through a description of the functioning of an economic system. Assuming a very elementary model; where there is no government interference and no foreign trade; existence of two prominent sectors--personal and business--can be visualized. The business sector is the sole contributor to the economy's national product, using economy's resources. The main source of these resources exists in the personal sector. When any resource is hired by the business sector, its owner is rewarded. This remuneration, under purely competitive conditions, is decided by the contribution of the factor to the industry's product, and can be called the personal income. The income earned by the personal sector becomes a means of purchasing the articles produced by the business sector. Thus, this income, which was previously earned from the business sector, returns to its point of origination.

In this circular flow of money, two distinct streams of money payments can be identified; one where money is paid to the different resource

owners by the business sector, and the other where the persons spend this money on their consumption goods. Any policy measure which shows its concern for resource owners in an economy can be termed as the one justified on efficiency criterion. On the other hand, if the sole concern of the program rests on the persons as consumers, its justification has to be on welfare criterion.

Theoretically, different policies initiated in the past can be justified on either one or the other of these criteria, but in practice such justification is not so simple. For agricultural policies in particular, a good deal of overlapping is encountered with respect to the criterion on which they can be vindicated. It has mainly happened, as Schultz[22] pointed out, because of the belief that the increase in efficiency is correlated with that of welfare. Similarly, the income comparisons have also been colored by such a blend of these two criteria that, at times, it is very difficult to detect the policy criterion which the comparison suggests. Most of the time a comparison is made with a certain criterion in view, but its conclusions imply an overlapping concern.

In a study of the comparison of incomes and policy for the income equality for the farm and non-farm sectors, major emphasis should be laid on the differences in the nature of the two sectors. To the extent that monopoly control methods are successful in non-farm sectors, equalization of returns may be a questionable base for the public policy in the first instance and, secondly, in the real world it may be difficult to attain.

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[22]T. W. Schultz, _Production and Welfare of Agriculture_, op. cit. p.11.

Even the nature of the income changes in the two sectors has been described as being different. In agriculture a decline in money income is brought about almost completely by a decline in the prices, whereas in manufacturing much of the decline in money incomes is brought about by a decline in employment and output, while prices stay up or decline to a less degree.[23] The unfavorable position of farmers in the face of cyclical changes, both upward and downward, is attributable largely to the fact that they have very little ability to adjust output to shifts in demand, and very little bargaining power in the market.[24] The farmers are exploited on one hand by the market from which they buy their resource requirements and, on the other hand, by the market where their produce is sold. To what extent are these unfavorable terms of trade responsible for the disadvantageous situation of the agricultural industry? Heady has argued that,

> "if all other industries were put under the same degree of
> empirical scrutiny as has been done for agriculture, equal
> or large maladjustments would be found stemming from imperfect
> markets, monopolistic competition, labor organization,
> industrial concentration, tariff concession, lack of knowledge
> for people in one way of life when they would be more produc-
> tive in others, etc.."[25]

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[23] K. E. Boulding, Does Absence of Monopoly Power in Agriculture Influence the Stability and Levels of Farm Incomes? Policy for Commercial Agriculture, U. S. Congress Joint Economic Committee, 85th Congress, I session, 1957, pp. 42-50.

[24] D. L. MacFarlane, The Position of the Farm Industry in Periods of Inflation. Mimeo (Montreal: MacDonald College, McGill University)

[25] E. O. Heady, Feasible Criteria and Program. Problem and Policies of American Agriculture. op. cit., p. 207

Given these theoretical impediments in the path of the comparison

of farm and non-farm incomes, one can easily anticipate the major problem

area of this study:  How should a comparison be planned so that it will

provide a valid base for public policy decisions?  It requires answers to

questions such as:  Is one single comparison enough to furnish the necessary

evidence for the initiation of a particular income policy?  What should

the concepts of the farm and non-farm sectors be in a study like this?  How

should the income of the persons be measured for the farm and non-farm

sectors so a tendency of equivalency between them may be retained?  In the

empirical setting of comparison of incomes, it must also be recognized that

published statistics of incomes accruing to the agricultural sector tend

to under-estimate the total income received by the sector's labor force.[26]

Comparison of income can be made at the macro level and at the micro

level.  At the macro level the interest is mainly in comparing the

average income of a certain group of individuals with those in other

occupations; whereas, at the micro level, the income of a particular

person is compared with that of another individual under an equivalent

situation.  Aggregate analysis, per se, has certain limitations, e.g.,

many propostions which are claimed to be true for individuals or small

groups, turn out to be false for the aggregate.  Furthermore, aggregates

may be regarded as consisting of homogeneous units, without even doubting

their internal compositions and structure.[27] If the individual units are not

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[26]S. H. Lane, Recent and Comparative Changes in Canadian
Agriculture, VIII Annual Workshop, C.A.E.S. op. cit.

[27]K. E. Boulding, Economic Analysis, Rev. Edition, (London: Hamish
Hamilton, 1955) p. 238.

fairly homogeneous in their structure, the macro-level approach might not lead to any practical solutions. In Canada, where regional characteristics of agriculture are so diverse, and where at the political level, so much emphasis is placed on the regional agricultural policies, an analysis of the agricultural industry will hardly serve the purpose of providing a base for sound agricultural policies. Although micro-level comparisons will suggest better guide-lines for the resource adjustment of an individual, they require a great deal of empirical work. Even when it has been recognized that the micro-level approach is better than the macro-level approach, the load of work involved has been one of the major factors responsible for the unpopularity of its use. Such comparisons can be of manageable size if the number of cases to be studied is fairly small, but, when the number of such cases increases, more and more reliance has to be placed upon the macro-level, aggregate income comparisons. In a study of income comparisons, some decision on the optimum level of aggregation of the data has to be undertaken. The choice of the optimum would be governed mainly, on one hand, by the amount of empirical work involved and, on the other hand, by a desire to develop a suitable guide for public policies.

When a comparison is made for policies related to welfare, the usual measure is to compare the standards of living of people in the farm and non-farm sectors. As a measure of the standard of living, income figures possess obvious limitations. Furthermore, it is very difficult to measure equivalence of the standards of living on and off farms, and there is some question whether average farm and non-farm standards of living would be

expected to be equivalent when both groups are so different and diverse.[28]

Cash income, in many instances, and particularly in the case of farmers, would only be a partial indicator of the farmer's well being; the value of non-monetary items should also be taken into account. Farmers consume farm-grown products; occupy a farm dwelling which is charged to the farm business. A city worker, on the other hand, may have to drive long distances to reach his place of employment, his occupation may require more expensive clothes, or he may receive some fringe benefits. Even when all these items are evaluated correctly, the problem of evaluating the intangible items associated with the different occupations still remains. This will range from freedom of work and the independence of farming, to such things as nearness to recreation and medical centers associated with urban employment. At the micro-level, the measurement of all these items may not raise any insurmountable problem. In order to estimate correctly the share of these values in terms of welfare at the macro-level, many difficulties will have to be overcome.

In a developing economy, the agricultural industry is confronted with very peculiar problems related to incomes; e.g. the paradox involved with the existence of uneconomic holdings and agricultural product surpluses. The problem of farm and non-farm incomes, on one hand, is accentuated by the existence of many marginal and sub-marginal farms in Canada; whereas any drive to increase incomes through greater production efficiency, causes a problem of surplus and lower prices. Gilson felt that:

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[28] G. Shepherd, R.H. Beneke, and W. A. Fuller, Alternate Parity Formulas for Agriculture, Policy for Commercial Agriculture, op. cit. pp. 526-534

"Many of the farm families in Canadian Agriculture neither share fully in the economic and social progress of the nation, nor contribute their part to the efficient production of the agricultural industry."[29]

The existence of such sub-marginal units in agriculture drags the average income of the group down. Many of these farms rate fairly low in incomes relative to other persons in similar occupations. It is especially true for the basic unit of farming in Canada—the family farm. According to Gilson, the family farm does not appear to rate favorably when one compares the income status of workers in agriculture with those in similar occupations.[30]

When farm incomes are compared with non-farm incomes, it might turn out that farmers are at a disadvantageous position; even when incomes are adjusted for non-monetary benefits. It is interesting to note, however, that, despite these low incomes, an average farmer manages to accumulate a substantial amount of capital assets. Thus, in the farm sector, one faces the situation where an individual has a relatively low income but a large expected amount of accumulated capital; whereas, in the non-farm sector, the situation is that of having a high current income, with very little, if any, amount of accumulated capital. How should these two sets of incomes be made comparable? If an individual, even though his current income is low, is expecting to accumulate a larger amount of capital on his farm as his retirement fund,

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[29] J. C. Gilson, Nature and Implications of Sub-marginal Farms, Agricultural Institute Review, Vol. 13, No. 2. March-April, 1958.

[30] J. C. Gilson, Strengthening the Farm Firm, Agricultural Economics Bulletin No. 6, Dept. of Agricultural Economics, University of Manitoba, 1962.

income maximization no longer remains his primary objective, and, under
these circumstances, simple income comparisons may be fallacious. A farmer
in this case may put very little, if any, emphasis on the incomes in
alternative non-farm jobs. The net worth of the individual farm operator
greatly influences the type of adjustments he may pursue.[31]

Thus, the whole field of income comparisons, as one can easily
envisage, is replete with problems. The nature of these problems ranges
from being theoretical on one side to methodological and empirical on the
other. The field is not purely economic in nature; it involves, as well,
sociological and psychological attitudes of individuals.

The problematic situation, as described above, indicates the
following areas where empirical research should be undertaken:

1. What is the existing disparity in the incomes of farm people
   and other occupational groups?

2. What is the nature of this disparity?
   (i)   Is the income disparity of different magnitude when
         comparisons are made for various policy criteria?
   (ii)  Has the status of workers any effect on the income
         disparity?
   (iii) What is the regional pattern of income disparity?

3. What is the nature of the farm income problem in Canada? Is the
   main problem of the farm incomes that of being lower than those
   in the non-farm sector; or could the disparity of incomes within
   agriculture be regarded as even more severe than the inter-
   occupational income disparity?

4. What are the main factors responsible for the disadvantageous
   position of agriculture, if positive evidence to objective

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[31]L. J. Connor, et. al., Farm and Non-Farm Incomes of Farm Families
in Western Oklahoma, Oklahoma State University Bull. No. B-552, March, 1960,
p. 17.

number 1 is obtained? To what extent are the unfavourable terms
of trade for agriculture responsible for this situation? How
far can present capital investment explain the income disparity
within agriculture?

5. What other economic and non-economic factors are attached with
   with the incomes in the two sectors? Is there any evidence
   that farmers, because of their non-economic benefits, feel
   themselves to be at an equal level to non-farm people?

6. What has to be the major policy base for the agricultural income
   policies in Canada? Is a state of income equality for farm and
   non-farm sectors desirable?

Research on income comparisons can, therefore, be very helpful for

public policy formulation. It can be used to devise the most suitable

measure to be adopted in order to attain an efficient pattern of resource

use in the economy, and, thereby, to increase the levels of incomes of

the persons on farms. It can also tell the nature of adjustments needed in

the economy in order to bring about this efficient pattern of resource use.

One of the central aims of such a study would be to devise the best

methodology for comparing the farm and non-farm incomes. How should a giv-

en set of incomes in the farm and non-farm sectors be made comparable for

proper policy formulation. A thorough investigation of non-economic factors

associated with the economic ones, is vital.

The present study pertains to Canada and the provinces (excluding

Newfoundland) for the period 1926-61. The selection of the period was

governed mainly by the availability of statistical data. Though all the

information needed for the study was not available for this period, many

important series have been collected during this time. The study has been

confined to the macro level. Most of the micro level relationship have been

indicated at pertinent places. While most of the discussion in this study centres around the monetary and economic factors in comparing the two sectors, the intangible factors associated with incomes have also been recognized in many parts of the investigation.

CHAPTER III

REVIEW OF THE LITERATURE

The wide-spread interest of economists in agriculture's disadvantageous position[1] may be noted in the great number of studies which have been conducted on the issue of farm and non-farm income comparisons. A review of such studies, particularly with respect to the methodology used to estimate farmers' relative incomes, is very helpful in developing a refined technique of comparison between these incomes. With this objective in view, an attempt has been made in this chapter to critically evaluate these studies.

I. REVIEW OF THE METHODOLOGY

One of the pioneering studies in the field of income comparisons was made by Bellerby.[2] This study was a follow-up of the research conducted by E.M. Ojala, namely, "Should the size of the world agriculture be increased."[3] Bellerby in his study concentrated on a related issue, what income ratio between agriculture and industry will favour the attainment of the optimum size of agriculture in an economy? He developed this topic by first measuring the existing ratio of the two incomes. His measure of income disparity was based on a farm and non-farm incentive income ratio. Farm incentive incomes, in this study, were estimated by deducting aggregate wages,

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[1]This interest was indicated in Chapter II of this manuscript.

[2]J. R. Bellerby, _Agriculture and Industry Relative Incomes_, op. cit.

[3]_Ibid_, p. 1.

imputed interest on the value of equipment and livestock, and imputed net

rent on land and farm dwelling from the total net income of the farm sector.

This estimate also included an adjustment for the retail valuation of farm

incomes in kind.[4] Non-farm incentive incomes, on the other side, were

derived by adding together the wages and salaries, and incomes of entre-

preneurs. The total incentive income in a sector was divided by the adjusted

number of workers. The adjustment was made for the number of young and

woman workers, by assuming a youth to earn 0.75 and a woman to earn 0.66

as much as a man.

For the period 1926-45, Bellerby found that, on an average, farm

incomes were about 44 percent of the non-farm incomes. (TABLE I) The

average farm income during this period was $580 per man-year as compared

TABLE I

FARM AND NON-FARM INCENTIVE INCOME RATIOS,
CANADA, 1926-45

| Period | Farm Income per man-year | Non-Farm income per man-year | Ratio $\frac{F}{NF}$ |
|---|---|---|---|
| | D o l l a r s | | Percent |
| 1926-30 | 613 | 1,249 | 49 |
| 1931-35 | 164 | 835 | 20 |
| 1936-40 | 452 | 1,018 | 44 |
| 1941-45 | 1,090 | 1,676 | 64 |
| Average | 580 | 1,192 | 44 |

Source: Derived from the data supplied in J.R. Bellerby, op. cit., p. 98

[4]It is the adjustment made in the value of farm perquisites as they, because of being valued at the farm prices, impart an underestimating bias to the farm incomes.

to $1192 per man year in the non-farm sector. The ratio, with the exception

of a slight drop during early depression years, increased during this

period; the highest was attained during 1940-45.

The concept of incentive income has been recognized as a valid one

by many economists. However, in the field of income comparisons, it

needs some modifications in order to preserve its validity for public

policy formulation. If a concept of incomes has to be used in a policy

formulation, a prerequisite is that it should suggest a certain policy

criterion.[5] The concept of incentive incomes, when examined on this basis,

did not suggest a clean-cut policy criterion. It cannot be used for the

comparison of resource use because it included supplementary payments

and adjustments in the value of farm incomes in kind.[6] At the same time,

because off-farm earnings have been excluded from this estimate, it cannot

be used for comparing income of the two sectors for welfare purposes.

Furthermore, the non-farm incentive incomes had an upward bias to the

extent that they included the share of capital in the unincorporated

business income. The method of adjusting the labor force in the two

sectors was also very crude.

Colin Clark[7] estimated the relative income per worker by dividing

the whole economy into six major industrial sectors, and obtained the

results as presented in Table II.

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[5]It was mentioned in Chapter II that income comparison can
suggest two policy criteria: Efficiency of resource use and welfare
of people.

[6]Supplementary payments are transfer payments and have no
relation with the value of product added by the industry.

[7]Colin Clark, Conditions of Economic Progress, (London:
MacMillan Company, 1940) p. 522.

TABLE II

RELATIVE INCOME PER WORKER IN 1952, CANADA, BY INDUSTRIES

| Industry | % of total net income | % of total labor force | Relative income per worker[a] |
|---|---|---|---|
| Agriculture | 16.2 | 18.7 | 0.87 |
| Mining | 4.0 | 2.0 | 2.00 |
| Construction | 5.7 | 6.6 | 0.87 |
| Transportation and Communication | 10.6 | 7.8 | 1.36 |
| Manufacturing | 30.3 | 27.4 | 1.10 |
| Commerce and finance | 14.2 | 16.5 | 0.86 |

Source: Colin Clark, op. cit. p. 522.

[a] The relative income per worker has been calculated by dividing the percentage of total net income by the percentage of the total labor force in an industry.

In the study no direct attempt was made to compare the income disparity, but, on the basis of the data in this table, agricultural versus manufacturing industries' relative income per worker was calculated, which was 0.79 in 1952. Moreover, the method used in calculating the relative income was very crude, and, in fact, does not provide a reliable base for the policy formulation.

Anderson[8] compared the net product per unit of labor in agricultural and non-agricultural sectors. Productivity was defined in his study as:

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[8] W.J. Anderson, "Productivity of Labor in Canadian Agriculture", Canadian Journal of Economics and Political Science, Vol. 21, 1955, pp. 226-234.

"The value of the incremental product resulting from the
addition of one unit of labor to a fixed quantity of other
factors, given the demand to a product, the inherent ability
of the workers and the nature of production function."[9]

During 1942-53, he found that the productivity of agricultural

labor was almost one half that of the non-agricultural labor. (Table III)

TABLE III

PRODUCTIVITY PER UNIT OF LABOR, AGRICULTURE AND NON-AGRICULTURAL
INDUSTRIES IN CANADA, 1942-53

| Period | Net Product per Unit of labor in | | Ratio $\frac{AG.}{N.\ AG.}$ |
|---|---|---|---|
| | Agric. | Non-Agric. | |
| | Dollars | | Per Cent |
| 1942-45 | 858 | 1869 | 46 |
| 1946-50 | 1119 | 2323 | 47 |
| 1951-53 | 1761 | 3032 | 58 |
| average | 1192 | 2349 | 51 |

Source:  W. J. Anderson, op. cit. p. 235

The productivity of labor was calculated as follows:

The D. B. S. series of net farm income of farm operators was
adjusted by (1) deducting 5 per cent of the value of land and
other capital; (2) adding (a) wages paid by farmers, (b) rent
and interest paid by farmers, since the contribution of land
and other capital has been allowed for in (1); and (3) adjusting
for changes in inventories held by the Canadian Wheat Board.[10]

To obtain the size of the labor force in agriculture, Anderson

divided the total weekly hours worked in agriculture by the average hours

in the work week of the non-agricultural labor force, which resulted in

a figure which was 1.15 times as large as that of the Dominion Bureau of

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[9] Ibid. p. 228

[10] Ibid. p. 230

Statistics.

The non-agricultural labor product was estimated by adding together the wages, salaries, and supplementary labor income, and the net income of non-farm unincorporated business. Twenty-five per cent of the net income of the non-farm unincorporated business was deducted as the share of the capital. This figure was divided by the adjusted size of non-agricultural labor, to arrive at the net product per unit of labor.

The concept of income and its computation, as used in Anderson's study to measure the productivity of labor, is questionable. First, the technique adopted to measure the farm labor product over-estimated it by an amount equal to the depreciation on rented buildings, the repairs of buildings undertaken by the landlord, and taxes paid by the landlord.[11] Furthermore, the net farm income of farm operators included supplementary payments, which have no relation with the productivity of the labor force;[12] which has attached an upward bias to the estimate of the agricultural labor product.

The estimate of the non-agricultural labor product was also biased because, in this case, the apportionment of total income of unincorporated business to labor and capital shares was done simply by deducting 25 per cent of this income as the use for capital, with the rest attributed to labor. Although this ratio can be justified on a theoretical basis,

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[11]While calculating the net income, depreciation on operator owned buildings only is taken into account, apart from rent. Thus, when actual rent paid is added back to net incomes for farm operators, it leads to the over-estimation of labor product. However, due to data limitations, it is almost impossible to adjust for this upward bias. Presumably the size of this bias will not be very large, and can be disregarded.

[12]See footnote 6 of this chapter.

there is no a priori reason to expect this allowance to be true for the

Canadian economy. Some aggregation was also made in the conversion of

the labor force to equivalent units. The ratios were based on the data of

manufacturing industries, and were used to convert the labor force in

the whole non-agricultural economy. In the case of the agricultural labor

size as well, some degree of over-estimation was present. The procedure

used to estimate these labor units was on the basis of hours of work per

week of an agricultural laborer. It has been indicated by Johnson[13] that,

in Canada, off-farm incomes of farm operators was 50 per cent of the total

net income from farming. This implies that a "Man Year" based on the

hours of work is not a correct measure of labor units, as a good deal of

time is spent off the farm. Thus, Anderson's figures as a basis of

comparing farm and non-farm labor productivity, are unsatisfactory.

The Royal Commission on Agriculture and Rural Life,[14] compared the

farm and non-farm per capita income in constant (1935-39) dollars, for

the period 1926-54, and obtained the results presented in Table IV.

[13]D. Gale Johnson, Income and Resource Effects of Canadian and United States Farm Policies; A Comparison. (Chicago; University of Chicago, Office of Agri. Economics Research) p. 25.

[14]Royal Commission of Agriculture and Rural Life, Report No. 13, Farm Income, Government of Saskatchewan, (Regina: Queen's Printers, 1957) p. 27.

TABLE IV

FARM AND NON-FARM INCOME PER CAPITA, IN CONSTANT (1935-39)
DOLLARS IN CANADA, 1926-54

| Period | AVERAGE ANNUAL PER CAPITA INCOME IN | | Ratio $\frac{F}{NF}$ |
| | Farm | Non-Farm | |
|---|---|---|---|
| | Dollars | | Per cent |
| 1926-28 | 199 | 478 | 42 |
| 1929-41 | 104 | 455 | 23 |
| 1942-53 | 322 | 753 | 43 |
| 1954 | 230 | 748 | 31 |
| average | 263 | 591 | 35 |

Source: Royal Commission of Agriculture and Rural
Life, Saskatchewan, op. cit. p. 27

The Commission compared the incomes by grouping the years of

prosperity and depression separately. On this basis it was concluded that

farm people in depression years were at a much greater disadvantage than

during prosperity. However, the size of the gap between the two incomes

was considerable even during prosperity. An evaluation of the methodology

was not possible, because no explicit mention was made about the tech-

niques adopted. However, it seems that the technique used for comparing

these farm and non-farm incomes by the Commission was not perfect. In

this study the incomes of farm people from sources other than farming

were not included and also no adjustment was made to the number of workers

in the two sectors, for the differences in age structure and female

workers; thus income concepts for the two sectors were not comparable.

Drummond and Mackenzie [15] compared the net income and off-farm income per non-paid farm worker, and labor income per non-farm worker, for the period 1935-55, and found that the farm workers' income was 73 per cent of the non-farm incomes during this period. During the years 1951-55, it was revealed that farm workers' income was almost at a par with its counterpart. (Table V).

TABLE V

NET FARM INCOME AND OFF-FARM INCOME PER NON-PAID FARM WORKER
AND LABOR INCOME PER NON-FARM WORKER IN CANADA IN CONSTANT (1949)
DOLLARS, 1935-55

| Period | Per worker farm | Income at non-farm | Ratio $\frac{F}{NF}$ |
|---|---|---|---|
| | Dollars | | Per cent |
| 1935 | 606 | 1685 | 36 |
| 1936-40 | 784 | 1826 | 43 |
| 1941-45 | 1758 | 2092 | 84 |
| 1946-50 | 2006 | 2213 | 91 |
| 1951-55 | 2477 | 2498 | 99 |
| average | 1595 | 2194 | 73 |

Source: Drummond and Mackenzie, op. cit. p. 342

For the farm sector, the concept of income included the return for (1) non-contractual labor, i.e., non-paid labor of the operator and other workers, (2) management, (3) use of capital, and (4) off-farm work of the farm operator and his labor force. In the non-farm sector, on the other hand, the labor income only included the labor income.

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[15] W. M. Drummond and W. Mackenzie, Progress and Prospects of Canadian Agriculture, op. cit. pp. 340-343.

Like the other methods, this technique is not ideal in all respects. Its main limitation lies in the fact that it does not measure the equivalent incomes for the two sectors. For the farm sector, the labor income included the incomes of non-paid labor (operator and family labor) from farm and off-farm employment; whereas, for the non-farm sector, only the income of wage earners was included. Obviously, income of labor alone cannot be regarded equivalent to that of labor, management, and capital. Secondly, the size of the labor force in the two sectors was not made fully comparable due to the fact that the differences in the age structure and the proportion of female workers in the total labor force of the two sectors were not adjusted.

Mackenzie[16] in 1961, again computed the ratio of labor income per agricultural and non-agricultural worker, for the period of 1926-58, as shown in Table VI. (Page 32).

The computation of agricultural income, in this case, was done by adding to the realized net income of farm, wages of hired labor, net rent paid, and interest on capital. The allowance for capital invested was made at 5 per cent and 2.5 per cent and, to this figure, a figure was added to bring up the farm value of perquisites, to retail prices. The non-agricultural labor income included only the wages and salaries of workers; the income of unincorporated business was excluded because it was not possible to make a calculation of that part of their income which is to return to capital.

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[16] W. M. Mackenzie, "The Terms of Trade, Productivity, and Income of Canadian Agriculture", Canadian Journal of Agricultural Economics, Vol. IX, No. 2, 1961, pp. 1-13.

TABLE VI

AVERAGE LABOR INCOMES PER WORKER IN AGRICULTURE
AND NON-AGRICULTURE IN CANADA, 1926-58

| Period | Average labor income per worker in | | Ratio $\frac{AG}{NAG}$ |
| | Agric.[a] | Non-agri. | |
|---|---|---|---|
| | Dollars | | per cent |
| 1926 | 626 | 1230 | 51 |
| 1929-33 | 264 | 1167 | 23 |
| 1939-43 | 681 | 1416 | 48 |
| 1944-48 | 1214 | 1874 | 65 |
| 1949-53 | 1742 | 2621 | 66 |
| 1954-58 | 1499 | 3375 | 44 |

Source: W. Mackenzie, op. cit. p. 10.

a/ The figure for the agricultural labor income were computed by
allowing 2 rates of capital interest. The figures shown over here are the
ones which were obtained by deducting 5% on the capital invested in
agriculture.

The concept of income for the farm sector as used in this study was
almost analogous to that developed by Bellerby. But for the non-farm
sector the method deviated from his approach. This technique like the
other ones suffers from a few weaknesses. For example, the profit earning
class was excluded only from the non-farm sector and not from both farm and
non-farm sectors. It implies that the labor incomes in the two sectors no
longer represent comparable concepts of incomes. Similarly, the study also
assumed that workers in the farm and non-farm sectors have similar character-
istics, which may even be more serious in affecting the comparability of the

two sectors. Inclusion of part-time workers in the farm sector as full time workers may completely distort the income differential.

Rourke[17] in 1963 while assessing the relationship between farm and non-farm sectors, computed a comparable figure for income per worker in the two sectors. The results obtained almost supported the conclusion of low agricultural incomes. (Table VII).

TABLE VII

INCOME PER NON-AGRICULTURAL WORKER AND INCOME PER
AGRICULTURAL WORKER FROM FARMING SOURCES IN CANADA, 1947-61

| Period | Income from farm sources per member of agri. lab. force in 1949 dollars. | Income per member of non-agri, labor force in 1949 dollars. | Ratio $\frac{AG}{NAG}$ |
|---|---|---|---|
| | | | per cent |
| 1947-50 | 1384 | 2802 | 49 |
| 1951-55 | 1629 | 3093 | 53 |
| 1956-60 | 1518 | 3474 | 43 |
| 1961 | 1238 | 3579 | 35 |
| Average | 1500 | 3175 | 47 |

Source: B. E. Rourke, op. cit.

The real personal income per member of the farm and non-farm sectoral labor force was derived by dividing the total personal income

[17]B.E. Rourke, "Relationship between the Agricultural and non-agricultural sectors of the Canadian Economy". Unpublished M.S. thesis, University of Toronto, Ontario Agricultural College, Guelph, 1963.

of the sector by its labor force and the index of living cost. The

concept of income, in the two sectors, was not strictly comparable in

this study. For the agricultural sector, it excluded the income of

farmers from non-farm sources, while for the non-farm sector it included

the incomes which were not earned by its labor force, such as welfare pay-

ments, investment incomes, other transfer payments, etc.

On the basis of this evaluation of the existing studies it can

easily be noted that these methods of income comparisons differ widely.

At the same time, it may also be noted that none of these comparisons seem

to satisfy the criterion of validity. Thus, in order to develop a valid

comparison of farm and non-farm incomes, these approaches should be

refined.

II. MAJOR LIMITATIONS OF THE STUDIES AND AREAS OF FURTHER IMPROVEMENT

The review of the above mentioned studies reveals that none of the

studies is a perfect study, particularly with respect to the methodology

adopted to compare farm and non-farm incomes. The following points can

be listed which need further improvement in order to achieve a valid

comparison of the incomes:

1. The concept of the income measurement in the two sectors has not
   been fully comparable and at times does not specify the purpose
   underlying the income comparison.

2. The labor force and/or the size of the consuming population has
   not been treated on equivalent terms for the two sectors and in
   many cases it is not in full agreement with the concept of
   income used.

3. The relative differences in the earning capacities of women
   workers in some studies were not adjusted for the two sectors'
   labor force. Even when in some cases the adjustment was made,
   the method was not very satisfactory.

4. Most of the comparisons have been made by treating Canadian agriculture as homogeneous entity, and no mention was made of the regional differences within agriculture.

5. Most of these studies ignored the income of farmers from non-farm sources. At the same time, no adjustment in the size of agricultural labor force, with respect to time spent off-farm, was made.

6. Non-monetary items associated with the lower income levels have been ignored in almost every study.

7. In most of these studies certain considerations which may partially justify the existence of a large gap between farm and non-farm incomes have not been recognized. A list of such consideration may include factors like the difference in the cost of living, accumulation of capital on farms, and so on.

Thus to conclude, the direct income comparisons, as conducted do not measure the real disparity between farm and non-farm incomes. Many considerations must be taken into account before a valid comparison may be developed. In the following chapters, a discussion of theoretical and empirical considerations involved in comparing the farm income and non-farm incomes will be presented.

CHAPTER IV

THEORETICAL CONSIDERATIONS

The conventional theory of distribution[1] is concerned with the
distribution of total output, produced by a given set of resources
during a specified period of time, among different input factors en-
gaged in its production. The share received by various resources
constitutes the income of persons in the economy.[2] Depending upon the
distribution mechanism in different sectors of the economy, various
levels of income will be generated for different types of resource
owners. In order to develop a valid comparison of incomes, a study of
the distributing mechanism in various sectors of the economy is basic,
because it will facilitate the selection of a suitable base for
comparisons. This chapter deals with the theories and postulates
concerning the determination of income and its distribution in an
economic system.

### I. THEORY OF INCOME DISTRIBUTION

The theory of income distribution is in a highly unsatisfactory
and controversial state.[3] Various theories concerning income

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[1]The term conventional has been used to denote the theories of
distribution, as developed by the Classical economists such as Ricardo,
Adam Smith, Marx, Marshall, etc.

[2]It implies that each of these resources is owned by persons and
the payments made by the business sector to the input factors are
received by their owners.

[3]T. Scitovsky, A Survey of Some Theories of Income Distribution.

distribution cover one or the other of the following subject areas:
(1) The levels and changes in the level of incomes earned in present
occupations, (2) Changes in the distribution of personal income by
size, (3) Functional distribution of income among the owners of
different factors of production, and, (4) The relative size and
changes in the relative size of the various components of the official
personal income accounts.[4] A majority of the theories in the field
have dealt with the functional distribution of income, and very little
theorizing has been made on the other three areas.

The functional distribution of income is involved primarily with
the allocation of resources, and can almost be regarded as a general
equilibrium problem. General equilibrium theory seeks to account for
the prices of input factors. Since the theory of distribution deals
implicitly with the determination of prices of input factors, it be-
comes an integral part of the general equilibrium problem.

In the traditional theory, three productive services have been
recognized: land, labor, and capital. The term labor usually refers
to people involved in production. The term 'land', as a factor or
production is used to denote natural resources as a group. Similarly,
the term 'capital', specifies the group of capital goods, representing
a special class of commodities, produced for use in the production of
further commodities or services. Capital has not usually been accepted

Studies in Income and Wealth. Vol. 27, Report of the National Bureau
of Eonomic Research, Inc., (Princeton: University Press, 1964,)
p. 15.

[4]Ibid. p. 15.

as a separate factor; it is classed with other commodities as the output

or embodiment of the basic resources- land, and labor; therefore, its

status as an additional factor of production has not been claimed.[5]  The

distributive shares received by these factors are:  Wages to labor, rent

for land, and interest for capital.  Interest as return on capital is

only recognized in the long run; in the short run capital has been regard-

ed as earning 'quasi-rents'.[6]  In addition to rent, wages, and interest,

under short-run conditions, one also encounters a distributive share-

profit, which goes to the factor 'enterprise'.  This share is usually a

sum left with the entrepreneurs, after paying for the costs of labor,

land, and capital.  Under general equilibrium conditions, profit should

represent mainly a return to artificial or non-competitive restriction of

output, as no 'productive' function is rendered in return for it.

The discussion in this chapter has not been presented in this

traditional way; the topic is discussed in a general manner.  So simple a

breakdown has long been out of fashion; each of these categories includes

within it such a great variety of heterogeneous elements,[7] that the tradi-

tional classification of factors of production is no longer applicable.

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[5]J. S. Bain, *Pricing, Distribution and employment-Economics of an Enterprise System*, (New York:  Henry, Holt, and Company, 1949.)  p. 271.

[6]The concept of 'quasi-rent' was developed by Marshall.  For discussion see, A. Marshall, *Principles of Economics*, (New York:  The Macmillan Company, VIII edition, 1963,)  p. 341.

[7]W. J. Baumol, *Economic Theory and Operational Analysis*, (Englewood Cliffs:  Prentice Hall Inc., 1961,)  p. 276.

In an economic system, the monetary payments follow a path of circular flow.[8] The main feature in such a system is that the aggregate total cost of producing the output, which is the aggregate money payments to the resource owners (it can also be referred to as aggregate supply price), is closely interdependent on the aggregate demand price. The latter is the aggregate receipts of all the enterprises obtained as money payments for the sale of their outputs. In actual functioning of such a system the demand and supply price may not be equal, as hoarding of money, changes in the value of stock and liabilities, and differences in the inventories, etc. will account for a part of this difference. A study of the determination of supply and demand prices is of prime importance from the point of view of analyzing the incomes in different occupations. Any such study should obviously start with the circular flow of money. The following discussion studies the factor share determination under perfect and imperfect competitions. On the basis of the distributive system under these two competitions, an analysis will also be made with respect to its implications for income comparisons.

Factor Share Determination under Perfect Competition: The best place to start in the circular flow of money, is the entrepreneur. One may think of an entrepreneur, at the beginning of a production planning period, as having certain fixed factors of production and access to a perfectly

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[8]The circular flow of income has been discussed in chapter II of this manuscript.

competitive market[9] in which he can procure other variable factors needed for a particular production. The demand for a factor of production under such conditions is a derived demand; derived on the basis of the demand for the product produced. The demand for the product is governed mainly by the level of market prices.[10] By assuming, for the sake of brevity, that firm hires only one factor of production $(X_1)$, its profit function can be formulated. Given the technical conditions of the firm[11] and the market prices for products and factors, the profit function of the firm will be:

$$\Pi = P_Y \cdot Y - (P_{X_1} \cdot X_1 + F) \quad \ldots \ldots (1)$$

where $\Pi$ is the profit of the firm, and $F$ is the fixed cost. In order to maximize the profit two conditions must be fulfilled:

$$(1) \frac{d\Pi}{dX_1} = 0, \text{ and } (2) \frac{d^2\Pi}{d X_1^2} < 0.$$

From the first condition, it can be deduced that $P_Y = \dfrac{P_{X_1}}{MPP_{X_1}}$ or,

$$MR_{X_1} = MC_{X_1} . \quad \ldots \ldots \ldots (2)$$

which means that the absolute quantities of the factors employed by the firm depend upon the relation of the total money price of a

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composite dose of factors, the money price of goods produced, and the

marginal productivity of the factors.

When a shift from a single firm to an industry is made under

perfect competition, a new dimension - that of the interactions of the

competing firms for demand of the factors - is added to the problem.

In the short run, this competition, by limiting the hiring of factor

services, determines the contribution of individual firms to the total

output; whereas, in the long run, it is also responsible for the

absence of any profits for the entrepreneurs.

When the analysis is extended to consider the purchase of

factor services by a competing economy, the interaction of all the

buyers for all the factors must be taken into account. It leads to the

inclusion of 2 additional items in the analysis; first the supplies of

the various factors cannot be regarded as perfectly elastic to the econ-

omy as a whole, i.e., all the factors are scarce and relatively inelas-

tic in supply, and their prices are left to be determined; secondly, as

the payments received by these factors give rise to the demand for pro-

ducts, this relation must be made a part of the explanation of factor

pricing and employment.

Assuming that each factor is characterized by a perfectly inelas-

tic supply, it is easy to deduce that the money price of a factor would

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$Y = f(X_1, / X_2, \ldots, X_h, // X_{h+1}, \ldots, X.)$ where, a decision has to be
taken about the level of $X_1$, factors $X_2 \ldots X_h$ are variable but do not
enter into decision making process (by assumption), and factors
$X_{h+1} \ldots X$ are given at a fixed level.

move in such a manner as to equalize the demand and supply of the factor, consistent with a full employment level. This would be true of every factor of production. The end result would be full employment in the economy, along with the price-average cost equality for all the firms; the equality of total money payments to factors; and the total flow of sale receipts to the firms. Thus, the aggregate receipts of all the enterprises are not independent of the aggregate money income payments to the factors of production. Each of them feeds the other in a perpetual circular flow through time. If aggregate money income demand for goods continually exceeds the money income payments from which it is derived, a stage of monetary expansion persists. It indicates the continued upward adjustment of commodity prices, factor prices, and, to a limit, that of output and employment. In such a situation, the attainment of full employment, or at least no involuntary unemployment, is highly probable. If, on the other hand, the aggregate money demand continually falls short of money income payments to factors, a state of frictional unemployment would tend to exist. As the entrepreneurs find a downwards shift in the demand for their products, they individually tend to restrict their output, thus reduce the employment of the factors. If the money factor prices are rigid, this downward shift may lead to a progressive accumulation of unemployment.

A good deal of theorizing on the determination of functional share has been propounded during the last century. One of the earliest contributions in this field was Ricardo's theory of wages. This theory asserts that the wage rate always tends towards the subsistence level, because a

higher wage will raise the birth rate and a lower one will raise the death rate of workers, thereby increasing or diminishing the supply of the labor. According to this theory, the supply of labor acts as a major force in the adjustment of wages towards the subsistence level. For the modern theories of wages, the beginning was made by Hicks, in which he introduced the idea of induced technical change in an attempt to account for the stability of factor share. The most satisfactory explanation for the factor share stability is met in the articles of Brown-Weber, and Kaldor.[12] Brown and Weber explained the stability of the share of capital in total income by a propensity of businessmen to maintain, at least in the short run, a fixed proportional relationship between prices and direct costs. Kaldor, in turn, gave the same arguments, worded a bit differently.

Factor share determination for individual firms can be explained by the marginal productivity theory. According to this theory, the demand of a firm for a specific factor is determined by the firm's production function, the prices of the outputs it produced, and the prices of the various factor services it uses or might use.[13] The theory gives satisfactory results only under the assumption of pure competition; which

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[12] E. H. Phelps Brown and B. Weber, Accumulation, Productivity and Distribution in British Economy, 1870-1938. Economic Journal, Volume 63, 1953. N. Kaldor, A model of Economic Growth, Economic Journal, Volume 67, Dec. 1957.

[13] M. W. Reder, Alternate theories of Labor's share, edited by M. Abramovitz, In the allocation of Economic Resources. Essays in the honor of Bernard Francis Haley. (Stanford: Stanford University Press, 1959.) p. 181.

is an exceedingly convenient tool for simplifying the analysis; but
there is no reason to expect it to be fulfilled in the real world.
This group of theories also assumes the persistence of essentially
static conditions and has a notable effect of making possible a homo-
geneous theory of distribution. Furthermore, it tends either to dis-
miss the higgling of the market as a negligible disturbing element, not
capable of or worthy of receiving study; or to consider that it operates
within fairly narrow limits set by such strictly economic factors as
productivity.[14] Some have even gone as far as to say that these theo-
ries are not an adequate basis for explaining the income determination
and distribution in an economic system; there is no close correlation
between the remuneration received by resource owners and the value of
marginal product or the marginal revenue product of the resources they
own[15]. However, marginal productivity theories offer certain criteria
for attaining an optimum pattern of resource use in an economy. The
optimum allocation of resources is reached when it is not possible, by
reshuffling the factors of production between different firms
(production units), to increase the output of any firm without diminish-
ing the output of any other firm.

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[14]J. M. Clark, Distribution. Readings in the theory of income
distribution. American Economic Association Series, (London: George
Allen and Unwin, Ltd., 1961.) pp. 58-71.

[15]R. H. Leftwich, The Price System and Resource Allocation.
(New York: Rinehart and Winston, 1963.) p. 339

The optimum in the Intra-industrial and/or inter-industrial allocation of resources can be tested on the basis of the following three conditions. The first condition deals with the optimum degree of specialization among firms and industries. It requires that the marginal rates of transformation between any two products should be the same for any two firms or industries that produce both. Mathematically the condition can be stated as:

$$\left[\frac{\text{MPP}(X_1,\ldots,X)Y_1}{\text{MPP}(X_1,\ldots,X)\,Y_2}\right]_1 = \left[\frac{\text{MPP}(X_1,\ldots,X)\,Y_1}{\text{MPP}(X_1,\ldots,X)\,Y_2}\right]_2 \quad \ldots\ldots(3)$$

The second condition deals with the optimum factor product relationship among the firms, which requires that the marginal rate of transformation between any factor and any product should be the same between any two firms using the factor and producing the product, i.e.,

$$(\text{MPP}_{X.Y})_1 = (\text{MPP}_{X.Y})_2 \quad \ldots\ldots(4)$$

The last condition decides the optimum allocation of factors among firms. It requires that the marginal technical rate of substitution between any pair of factors must be the same for any two firms using both to produce the same product, or, mathematically,

$$\left[\frac{\text{MPP}_{X.2Y}}{\text{MPP}_{X.1Y}}\right]_1 = \left[\frac{\text{MPP}_{X.2Y}}{\text{MPP}_{X.1Y}}\right]_2 \quad \ldots\ldots(5)$$

Thus, in general, the rule for the optimum allocation of resources can be stated as— the factors should be allocated among all the various lines of production in such a way that the value of their marginal products are equal throughout the economy.

Another set of theories explaining the income of the resource owners may be classified as Mark-Up Theories.[16] These theories make the distribution of the receipts of a firm, industry, group of industries, or an entire economy, depend upon the relative prices of factors services and products, but regard these prices as being independent of relative quantities. According to these theories, the wage rate is supposed to reflect union and employers' bargaining power rather than the amount and significance of the excess demand for the labor.

The dearth of theories on the income earned in different occupations and sizes does not enable one to make any significant use of the theory for income comparisons, and thus, a theory in these areas should be formulated.

While extending the analysis to consider the purchase of factor services by a competitive economy, the second item to be included, was to examine the effect of the payments received by factors on demand for products, and indirectly on factor pricing. As the payments received by factors become money incomes in the personal sector, money incomes are mainly determined by the ownership of resources and the price received for their use. Most incomes are determined by the market forces, and directly emerge as a consequence of the factor share determination. They are, of course, the wages and salaries, fees, commissions, rents, interests, and profits. Some incomes are also decided upon and paid outside the realm of market forces; such as public

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[16] M. W. Reder, Alternate Theories, op. cit.. p. 182.

assistance. Assuming for simplicity purposes that all the incomes are determined by the market prices, two questions need further analysis: The first one is how are the personal income distribution and the factor share determination inter-related? The second question is, if market prices are correct, can the resulting pattern of income inequalities be ethically justified?

In order to answer the first question, the analysis of consumer behavior is necessary. The consumers assist in the distribution process by transferring their income to entrepreneurs at various points in the chain of supply through purchasing the products. The consumers, by expressing their choice between different products, determine the flow and pattern of the whole national product. Following any general rise in the consumers' income, the new point of consumers' equilibrium shows some changes - slight or great, in the demand for various products. In the case of few products the increase in their budget outlay is more than the increase in their incomes- indicating that the income elasticity for these products is greater than one, and in the case of some, the increase in outlay is proportionately less. . This difference in the consumers' behaviour for various products is, mainly, responsible for the wide disparity in the incomes of persons engaged in various industries.

The answer to the second question can only be devised in the light of certain norms of income distribution. People visualize as an ideal a kind of income distribution where everyone gets (1) an adequate minimum of subsistence and above that living floor each gets (2) as

much as he deserves according to his efforts and abilities, and his contribution to the national production.[17] Thus, only under strict conditions of static equilibrium and perfect competition, it may be expected that the resulting distribution would be ethically justified. For practical reasons, it is difficult to decide about the ethical evaluation of the resulting distribution, as personal value judgements and other external factors are also responsible for the total welfare. Lerner has suggested that if it is impossible on any division of income to discover which of any two individuals has a higher marginal utility of incomes, the probable value of total satisfaction is maximized by dividing income evenly.[18] It is the usual theoretical support which has been taken while arguing for the equal incomes for persons in various industries.

Monopolistic Competition and Income Distribution:- From the discussion of the functional and personal income distribution, it might appear that for a whole economy pure competition would represent a relatively ideal state of affairs. Under such condition the price system would function automatically to effect satisfactory allocation of resources, distribution of income, and efficiency of production. But at the same time, one should

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[17] R. Schickle, Optimum Income Distribution as a goal of Public Policy. American Journal of Economics and Sociology. April 1944. pp. 453-478.

[18] A. P. Lerner, The Economics of Control, Principles of Welfare Economics. (New York: The Macmillan Company, 1944,) p. 29.

also bear in mind that perfect competition is a theoretical ideal, and its attainment in the economy, as a whole, may not be possible. There are two main reasons for this lower probability of a perfectly competitive economy. First, perfect competition requires a very large number of firms, of fairly large size, in order to have the advantages of large scale production. It is necessary, for the maintenance of any reasonable approximation to perfect competition in an industry, that the techniques of production should be such that every firm can grow large enough to exploit all the advantages of mass production, but not large (relative to total demand) that any firm will control a substantial share of the market. Clearly, fulfillment of this condition is very difficult. The second reason for a "lower probability of perfect competition in reality" is that it requires homogeneity of products, whereas no two firms produce exactly identical products. The condition of identical and undifferentiated products has been refuted by many theoreticians, such as Chamberlin and Robinson. A general class of product is differentiated if any significant basis exists for distinguishing the goods (or services) of one seller from those of another.[19]

In a few industrial sectors conditions do not approximate pure competition at all. The competition in these industries is identified as monopolistic competition. An industry or market is referred to as monopolistic competition, if the actions of one or more buyers or sellers have a perceptible influence on price.[20] Product and input markets have usually

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[19]E. H. Chamberlin, The Theory of Monopolistic Competition. (Cambridge: Harvard University Press, 1960.) p. 56.

[20]J. M. Henderson and R. E. Quandt, Micro-economic Theory.

been classified according to the number of buyers and sellers which they contain. A market with one seller is a monopoly, with two is a duopoly, and with a small number but greater than two is an oligopoly.

The relative efficiency and implications of monopolistic competition can be examined under three broad heads: its effect on (i) resource allocation, (ii) total welfare of the economy, and (iii) income distribution.

(i) <u>Resource Allocation Under Monopolistic Competition:</u>- For the sake of simplifying the analysis, assume that the industry is that of monopoly- a market with a single seller. The demand curve for the industry is identical to that faced by the monopolist. It differs with that of an industry under pure competition in 3 respects:[21] First under pure competition it is impossible to treat various buyers differently, whereas under monopolistic competition this may be possible; secondly, account must be taken of the possible entry of rivals into the monopolized industry; and, thirdly, under monopoly it may become profitable to alter the demand curve. The main determinants of the demand curve under monopolistic competition are no more prices, incomes, and consumers' preferences only. According to Chamberlin[22] the demand for the product of such a firm is a function of 3 variables: (i) the nature of the product itself, (ii) the price, and, (iii) the selling outlay. Advertising

(New York: McGraw Hill Co. 1958,) p. 164.

[21]G. J. Stiglar, <u>The Theory of Price</u>. (New York: The Macmillan Company, 1959,) pp. 204-205.

[22]E. H. Chamberlin, <u>Towards a more General Theory of Value</u>. (New York: Oxford University Press, 1949,) p. 49.

becomes one of the powerful tools in the hands of the monopolist to change the demand situation of his product. Some advertising improves the allocation of goods by providing useful information to consumers, but most of it has the effect of stressing partly or wholly imaginary differences between goods; and so persuades consumers to pay a higher price for the differentiated product.[23]

If the monopolist's selling price is $P_Y$, where $P_Y$ is a function of quantity, i.e., $P_Y = \varphi(Y)$, and his total cost can be represented as $\psi(X)$, then his profit function on selling the output will be

$$\varphi(Y) \cdot Y - \psi(X) \qquad \ldots\ldots(6)$$

which is maximized when

$$Y \cdot \varphi^1(Y) + \varphi(Y) = \psi^1(X) \qquad \ldots\ldots(7)$$

or, $MR = MC$.

Defining elasticity of demand $\eta$ as,

$$\eta = \frac{\varphi(Y)}{Y \cdot \varphi^1(Y)} \qquad \ldots\ldots(8)$$

equation (7) can be rewritten as

$$\varphi(Y) \cdot \left(1 - \frac{1}{\eta}\right) = \psi^1(X) \qquad \ldots\ldots(9)$$

The second condition for maximum profit

$$\frac{d}{dY}\left[Y \cdot \varphi^1(Y) + \varphi(Y) - \psi^1(X)\right] \ldots\ldots(10)$$

should be negative, i.e.,

$$\frac{d}{dY}(MR) < \frac{d}{dY}(MC) \qquad \ldots\ldots(11)$$

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[23] A. P. Lerner, op. cit. p. 43.

Thus, the monopolistic equilibrium is stable, so long as the marginal revenue curve slopes downwards more steeply than the marginal cost curve upwards.[24]

Assuming for simplicity purposes, that the monopolist hires only one resource, his equilibrium will be at a point where the marginal revenue product of that unit of factor is equal to its price, i.e.,

$$MRP_{X_1} = P_{X_1} \quad \text{or,} \quad \ldots\ldots(12)$$

$$MPP_{X_1} \cdot MR_Y = P_{X_1} \quad \ldots\ldots(13)$$

As the monopolist firm faces a downward sloping demand curve, at each point a tendency of resource exploitation exists because of the fact that marginal revenue product of a factor is always less than or equal to its value of marginal product. It can be demonstrated as follows:

From equation (12) and (13),

$$MRP_{X_i} = MPP_{X_i} \cdot MR_Y$$

From equations (7) and (9),

$$MR_Y = \varphi(Y) \left[ 1 - \frac{1}{\eta} \right]$$

whereas, $\quad VMP_{X_i} = \varphi(Y) \cdot MPP_{X_i} \quad \ldots\ldots(14)$

which under perfect competition is equal to $P_Y \cdot MPP_{X_i}$.

If suppose, there is no tendency of resource exploitation under monopolistic competition, then

$$MRP_{X_i} = VMP_{X_i} \quad \text{or,}$$

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[24]For further discussion on the stability of this equilibrium see, J. R. Hicks, Annual survey of economic theory, The Theory of Monopoly. Econometrica, Vol. III, 1935.

$$MR_Y \cdot MPP_{X_i} = \varphi(Y) \cdot MPP_{X_i} \qquad \ldots\ldots(15)$$

or,

$$\varphi(Y) \cdot \left[1 - \frac{1}{\eta}\right] = \varphi(Y) \qquad \ldots\ldots(16)$$

It is easy to deduce from the equation (16) that the identity does not hold true, as $1 < \frac{1}{\eta} + 1$, and $\eta > 0$ $\ldots\ldots(17)$ If equation (17) is correct, then one can conclude, that $MRP_{X_i} < VMP_{X_i}$, and thus, a tendency of resource exploitation under monopoly exists. Exploitation in this sense does not mean that the monopolist pays units of the resource less than do competitive firms hiring units of the same resource. Under monopoly it occurs because the monopolist, faced by the market price of the resource, stops short of the employment level at which value of marginal product of the resource equals price.[25] Monopolistic competition, therefore, can interfere with the optimum allocation of the factor as well as with the optimum division of the resources among different products.

(ii) Total Welfare Under Monopolistic Competition:- Inequalities among values of the marginal product of a resource in the industries of various degrees of monopolistic competition is the indication that under these conditions a maximum net national product cannot be attained in the economy. The national product can be increased by transferring units of the resource from lower value of marginal product uses to those where value of marginal product is higher.

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[25] R. H. Leftwich, op. cit., p. 306.

When a different or a similar degree of monopoly exists in different industries, resource allocation is not such as to give maximum satisfaction to the buyers.[26] By restricting the output at a lower level, the monopolist shifts and distorts the resource allocation for the whole economy. The last increments to real cost expended in the more monopolistic industries result in goods worth more to buyers than the outputs realized from similar final increments in the industries under less monopoly. In this event, a greater satisfaction to buyers would be yielded, if the production of the goods of the highly monopolized industries could be increased, keeping or reducing that of less monopolized industries.

(iii) Income Distribution Under Monopolistic Competition:- The impact of monopolistic competition on the distribution of incomes in an economic system can be evaluated by examining two items: First, the types of income shares under monopolistic competition, and the second, their distribution. Under monopoly along with the recipients of rents, wages and interest, even in the long run a fourth class of factor share recipients is present. This class is that of the profit receivers, which is the return on enterprise. Such profits are simply the earnings of artificial scarcity, imposed by a monopolist with the aid of some barriers to competitive entry which protects him. Thus, high incomes are due to superior money making abilities, but they also arise from monopoly

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[26] J. S. Bain, op. cit., p. 165.

disequilibrium, luck, fraud, and, inheritence.[27]

The overall effect of the monopoly on the income distribution is to make it more unequal. As the recipients of the excess profits, i.e., the shareholders in monopoly companies and their executives, are relatively few, and get higher incomes in terms of excess profits, the distribution of income tends to be more unequal.

Thus, the effects of monopolistic competition are almost opposite to those of pure competition. The monopoly tends to distort the allocation of the resources in an economy through maintaining a state of resource exploitation. It also tends to make the over all distribution of incomes more unequal.

## II. IMPLICATIONS FOR FARM AND NON FARM INCOME COMPARISONS

In the actual economy, various markets have divergent structural organizations. Some are monopoly, many are oligipolies, while monopolistic competition is fairly important, and there are a few markets characterized by pure competition. In such a mixed situation, the functionning of the price system is quite complicated. A mixed nature of competition may also be an obstacle for achieving a valid comparison of incomes because when incomes have been generated under different types of competitive forces, direct comparisons are not of much validity. In the comparison of farm and non-farm incomes, this problem is even more acute. The farming industry has very commonly been regarded as

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[27]D. W. Watson, Economic Policy: Business and Government, (Boston: Houghton Mifflin Co., 1960,) p. 608.

approaching the norms of perfect competition,[28] whereas, the non-farm industries tend to exhibit the characteristics of various degrees of competition. The resource allocation under such a mixed system does not reach a state of optimum; the equilibrium points for the firms of farm and non-farm industries satisfy the following inequality:

$$\frac{MVP_{X.f}}{P_{X.f}} < \frac{MVP_{X.nf}}{P_{X.nf}} \qquad ...(18)$$

where, the subscript 'f' refers to the farming industries, and the subscript 'nf' to the non-farming industries.

The inequality develops as a direct consequence of the exploiting tendencies existent under monopolistic competition. A higher net national product can be attained if the resources are transferred from the farming industry to non-farming industries.

Along with the difference in the competitive market forces deciding the share of a factor in the farm and non-farm sectors, consumers' preference for the products of these sectors also plays an important role in the distribution of income in an economy. Consumers' preference for a commodity in an economy under economic progress can be measured as its income elasticity. Products vary in the magnitude of their income elasticity coefficients; some are income inelastic whereas some are fairly income elastic. Food and a few other agricultural products can be categorized as income inelastic products. Especially in the countries with a fair standard of living, a general rise in the consumers' income

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[28] E. O. Heady, Nature of Agricultural Adjustment Problems. A Basebook for Agricultural Adjustment, Part 1, Iowa State University Bull. no. 20, 1957.

is accompanied by a less than proportionate rise in expenditure on food.

Heady has explained it as follows:

> "As income of the consumer increases food no more becomes their
> major concern. They want more home appliances, better housing,
> television sets, recreation, travel, and education."[29]

In the long run lower income elasticity coefficents for farm products

has also been regarded as one of the important factors responsible for

agriculture's disadvantageous position. In order to improve this situa-

tion, resource mobility out of agriculture has been suggested as the

best solution. Boulding has argued that:

> "As the products of agriculture are for the most part necessi-
> ties, "means of subsistence" with very inelastic demands, an
> improvement in agricultural techniques results only in a limited
> increase in agricultural output and manifests itself mainly
> in a transfer of resources, especially of labor and capital,
> out of agriculture into other occupations."[30]

But, in order for resources to be transferred from one occupation to

another, the relatively declining occupation must be less attractive than

the relatively expanding one. One can easily imagine a state of con-

flicting views between Boulding's suggestion for a transfer of resources

from agriculture, and the commonly accepted objective of agricultural

policies- Economic justice for farmers. Equality for agriculture, as is

usually advocated, can be supported more on ethical grounds rather than

on economic. An economic basis for aiming at equal returns through

public policy is that equal income opportunities for all occupations are

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[29] E. O. Heady, Agricultural Policy Under Economic Development.
(Ames: Iowa State University Press, 1962,) p.40.

[30] K. E. Boulding, Economic Analysis and Public Policy, op. cit.
p. 196.

consistent with an efficient use of resources and maximum national income.[31] Before a state of equal returns can be accepted as a basis of public policy, the following aspects of equality should be analyzed:

    a. Is equality of returns for all the occupations possible through natural forces of price system?

    b. Is equality of returns for all the occupations desirable?

    c. Under what conditions can the equality of returns be expected to endure?

Theoretically, equal returns in the farm and non-farm sectors may not be obtained, because of the presence of certain factors. The differences in the income elasticity coefficient for the product of two industries is responsible for a relatively depressed state of agriculture in the long run, even with increasing prosperity in the rest of the economy. The differences in the nature of competition, may in some part account for a higher return in the non-farm sector. Equalization of marginal returns for comparable resource services may be prevented by imperfections of the knowledge which factor owners possess relative to returns in alternative uses.[32] Furthermore, in an economy where trade unions are important, the effectiveness of relative earnings as a guide to the allocation of the labor force is very questionable.[33]

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[31] D. R. Kaldor, Farm Policy Objectives: A Study for the Parity question. Policy for Commercial Agriculture, op. cit.

[32] C. E. Bishop, Underemployment of Labor in Southeastern Agriculture, Journal of Farm Economics. Volume 36, 1954.

[33] M. W. Reder, Studies in the Theory of Welfare Economics, (New York: Columbia University Press, 1947,) p. 199.

Marshall has argued that it is commonly said that the tendency of pure competition is to equalize the earnings of people engaged in the same trade or in trades of equal difficulty, but this statement must be interpreted carefully.[34] "Under pure competition", he wrote, "the tendency of wages is not equal but unequal- in the proportion of efficiency of the workers".[35]

With respect to the question of the desirability of equal income opportunities in all occupations, the opinion of different groups of people probably will be unanimously affirmative. If the economy attains a stage where a factor receives almost the same remuneration in all alternative employments, a reshuffling of the resources among these employments will not increase the total income of the economy. In other words, at the point of equal incomes in all the occupations, an economy attains the point of maximum production under given quantity and quality of resources, and given technology. On the other hand, it can also be argued that, if the economy attains such a state, then the resource owners may lose all the incentives for resource adjustment and it may very well be the cause for stagnation of the economy. However, any program which brings about equality of incomes, through a more efficient allocation of resources would even be more desirable than equality of income through non-market forces per se.

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[34]A. Marshall, Principles of Economics, op. cit., p. 455.

[35]Ibid. p. 455.

A state of income equality, once attained, can be expected to exist over a period of time, if and only if, the resource adjusts continuously in such a manner to be consistent with the generation of equal incomes in all the occupations. It means that the resource adjustment process should be so rapid and continuous that it maintains an equilibrium under a dynamic situation.

Thus, the basis of equality of incomes for all the occupations, though desirable from ethical as well as from economic points of view, is theoretically difficult to attain in the first instance. Even if it is attained, to maintain it under changing conditions would be an even bigger problem.

### III. EVOLVING A VALID BASIS OF COMPARISON

As the farm and non-farm sectors are very different with respect to the factor share determination and income distribution, direct income comparisons as a measure of gauging the real income differentials may not be of much use. In order that a comparison may have some validity, a state of equivalance in the two sectors must be restored. This equivalence may be viewed as similarities with respect to certain characteristics. A valid comparison of farm income can be developed if the counterpart sector has the following characteristics:

1. The industry as a whole or the individual entrepreneur should be facing a market under pure competition, that is, the individual by his actions may not be in a position to influence the market prices.

2. The enterprise should be family entity. Most of the labor requirements should be supplied by the family workers. The relative rigidity in the working hours should also be smaller.

3. The enterprise should be that of self employed or employer type. The individual owner should be entitled to a joint labor-capital return, with an unlimited individual liability.

4. The size of capital investment should be equal to that in the farm sector.

5. The job should not require a very specialized skill, i.e., the labor should be transferrable between these occupations.

Theoretically, such a normative comparison would not only be ideal to compute, but it will also serve, to a sufficiently good degree, as an index of gauging income differentials in an economy.

## IV. SUMMARY

The theory of income distribution primarily includes the determination of factor shares. The factor share determination under a traditional model can be described by the simple marginal productivity theory. An entrepreneur employs the factor up to a point where MC and MR are equal. The major assumption of the theory is that of the prevalence of perfect competition; which is only a theoretical ideal, and a very convenient tool for analysis. In reality, the economy has a variety of competitive markets, most of them are of monopolistic nature. Under monopoly the tendency of the resource allocation and welfare is not that of attaining an optimum; the monopolist does not equate the value of Marginal product of the resource to its price, and the total welfare, thus obtained, can be improved if the resources are transferred from less monopolized industries to highly monopolized industries.

This discrepancy in the resource allocation and income distribution under the two types of competition has a considerable role to play in arriving at a valid comparison of farm and non-farm incomes. As the two industries, because of their varied nature of competition, are not strictly comparable, some other base of comparing the incomes in the two sectors must be devised. Such a basis could be the one having a state of equivalence as determined by similar competition, same nature of enterprise, and equal capital investment.

# CHAPTER V

## ANALYTICAL FRAMEWORK

In the previous chapters, the main attempt has been to indicate that public policy requires a base of valid income comparisons, and that the existing income comparisons possess certain limitations. Since these comparisons do not satisfy the criteria of validity,[1] an alternative technique(s) should be developed. While developing such a technique, two problems will have to be solved: first, what considerations will be taken into account in order to determine the validity of a comparison, and second, how will an empirical income comparison incorporate these considerations? These and other issues related to the methods of comparing farm and non-farm incomes are discussed in this chapter.

### I.  CONSIDERATIONS INVOLVED IN A VALID COMPARISON
### OF FARM AND NON-FARM INCOMES

Before listing the considerations which determine the validity of an income comparison, it seems pertinent that the term 'Validity' should be defined. Literally speaking, the term 'Valid' means — "Sound or capable of being justified".[2] However, for the purposes of this study, a pragmatic but analogous, meaning of the term can be chosen.

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[1] This conclusion was drawn at the end of Chapter III.

[2] The Webster Universal Dictionary, (Toronto:  Collins, 1963,) p. 1150.

Such a definition can be stated as — 'A comparison may be termed valid, if its conclusions can serve as a realistic basis for the formulation of public policies.' In other words, it means that income comparison should be such as to provide a logical base for policy formulations.

In order to satisfy this criterion of validity, the comparison should exhibit the following characteristics:

1. As one single comparison does not seem to provide a proper base for all public policies, more than one set of comparisons should be developed. The comparisons will have to differ according to the underlying objective of the public policy, as different criteria are needed to compare incomes from their efficiency aspect than for comparing them from the welfare aspect.

2. The farm and non-farm sectors should be fully comparable with respect to the concepts of income and labor force.

3. The comparisons should neither be too aggregative nor should they be too general. At least some sort of breakdown of farm and non-farm sectors, either according to industries or according to the types of laborers, should be undertaken. A regional analysis of comparative incomes may be even more desirable from a policy point of view.

4. The comparison should not only be confined to factors of monetary nature. Non-monetary factors may be very important for certain sectors of the economy, such as farming. Disregarding these factors, while making a comparison of incomes, might lead to erroneous results.

To ensure that a comparison does satisfy these characteristics, the technique of making a comparison should take into account certain

direct or indirect[3] treatments given to the empirical situation, in order to achieve a greater degree of validity in the comparison. The importance of including these considerations in the analysis is very obvious, since it helps the research worker to produce conclusive evidences about the real level of incomes in different occupations.

Various considerations, relevant in the field of income comparisons, can broadly be divided into two categories: Conceptual and Methodological.

A. Conceptual Considerations: Conceptual considerations relate to the precise definitions of various terms, which have been used in the context of income comparisons. Most of these definitions will concern the terms relevant to income generation in a sector, and the labor force responsible for this process. While defining various concepts, the main thing to keep in mind is that for any concept a state of comparability for the farm and non-farm sectors should be preserved. At the same time, however, the availability of date cannot be disregarded. Thus, the definition chosen for any concept, will have to satisfy both logic and available data situations.

B. Methodological Considerations: This category includes those considerations which concern the actual technique to be adopted for making a comparison valid. Methodology which should be used for any income comparison would not only be related to empirical factors; but

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[3]The term direct treatment in this reference would mean the empirical adjustments made to a set of data, whereas the indirect treatments will pertain to the reservations placed on the final conclusion in the absence of a complete empirical treatment.

non-empirical factors will also be regarded as having an almost equal role to play. On this basis, these considerations can be sub-divided into: Economic considerations, and non-economic considerations.

1. Economic Considerations: This sub-category includes the following considerations:

a) Considerations which bring about a comparability in the empirical concepts used for the farm and non-farm sectors: The farm and non-farm sectors have been described as having different characteristics with respect to generation of income and its distribution among people. Many of these differences, when further examined, may fall into a category of factors which can be homogenized for the two sectors. Such factors are: differences in the characteristics of labor force, like age structure, number of female workers, hours of work, part time workers, and so on. On the other hand, while making a comparison of incomes, one may also face a category of factors, whose difference may not be adjusted for the two sectors. Most of these factors can be suspected to be those for which empirical evidence is not available. This subgroup includes the following factors: skill and level of technical ability required for a job, technological change in an industry, risk and uncertainty involved in different types of production, monopoly, advertising and other non-price competitive policies, influence of labor unions, relative disparity of prices in the two sectors, etc.. Although it is not impossible to estimate the actual effect of these factors on the income level of a sector, much detailed statistical evidence is required. Whether or not such data are available will

decide the inclusion of such considerations in the analysis.

b). Considerations associated with the selection of a basis of comparison: Selection of the base of income comparison is one of the most important parts of the whole analysis. The main issue centres around the questions: What definitions should be attached to the terms farm and non-farm sectors? Should non-farm sectors be treated as a single homogeneous entity, composed of similar types of industry and supporting people of uniform behaviour? Theoretically, a suitable answer to these questions can be devised in the light of the underlying policy criterion, however a lack of empirical evidence may still be a handicap in selecting a base for income comparisons.

c). Considerations associated with the regional character of the economy. Because of the fallacies hidden in the national averages, a regional analysis of the pattern of incomes in any sector is very important. This type of analysis will mainly help in developing certain programs for a particular region, by giving a better insight into the whole economic system.

d). Considerations associated with factors related indirectly with the incomes. This category includes such factors as are believed to influence the incomes of a particular sector but which are not reflected in the income level. Though a direct effect of these factors is hard to measure, their inclusion in order to develop a valid comparison is important. In certain instances, presence of such factors may very well affect or completely alter conclusions which had been reached previously only on the basis of direct factors affecting income levels.

2. Non-economic Considerations: Economic factors in any system reflect only a partial view of the overall picture of income generation and distribution. The rest of this picture is explained by the existence of certain non-economic factors. For example, in the case of the farming industry, while evaluating the incomes of farm people a look into agrarian fundamentalism, peoples' views about the rural community, psychic advantages from the occupation, etc. will be of great value in the justification of apparent relative income disparity between the farm and non-farm sectors. The considerations involved in introducing such factors in the analysis may be termed as non-economic considerations.

## II. HYPOTHESES

From the problematic situation and theoretical framework of the problem, the following hypotheses are formulated for empirical verification.

1. (a) Farm incomes are lower than non-farm incomes, but at least a part of this income inequality is due to certain basic structural and technical differences in the two sectors.

   (b) This inequality would be reduced if proper adjustments for these differences are made.

2. Intra-agricultural disparity in incomes is greater than the inter-industrial income disparity.

3. Capital investment on farms can be postulated as one of the important factors affecting regional income levels.

4. The relative movement of farm and non-farm prices is responsible for a part of income disparity between farm and non-farm sectors.

5. The differences in the farm incomes of different regions can partly be explained by the fact that farmers supplement their income from farming with that from non-farm employment.

6. The disparity between farm and non-farm incomes has been
moderately small, if non-income factors are considered.

### III.  A MODEL FOR COMPARISON OF FARM AND NON-FARM INCOMES

The primary reason for an interest in the comparison of farm
and non-farm incomes is a desire to acquire some knowledge regarding
efficiency and welfare in agriculture.  From the theoretical discussion
in the last chapter, it appears that normative income comparisons would
be sufficient to satisfy this interest.  It suggests that further break-
down of farm and non-farm sectors will be required.  Such a sub-division
of these sectors should be carried to the point where the groups remain
comparable in terms of characteristics of a normative comparison.  For
comparing efficiency, along with incomes, information should also be
available regarding the characteristics of the productive factors that
produce the incomes.  These characteristics should be of sufficient
detail to enable one to adjust the results to achieve factor compar-
ability.  Turning to the question of comparing relative welfare, compari-
sons should have to consider more than current incomes.  Age composition
which influences preference functions for different occupations will have
to be included as a major factor affecting relative welfare.  Non-
economic variables as well, can hardly be ignored.

If the nature of data available for income comparisons is tested
against the data required for the normative income comparisons, one will
conclude that it is impossible to develop a normative income comparison.
Nonetheless, a valid comparison of farm and non-farm incomes can still
be developed under the existing data limitations.

In order to be consistent with the definition of validity as accepted for this study, income comparisons in this study are divided into two main types: income comparisons for efficiency, and, income comparisons for welfare.

While comparing incomes for efficiency purposes, the main aim of the analysis has been to compare returns to factors of production in various industries. In order that the comparative returns may be used to adjust resource allocation, an indication of marginal products of the factor in various industries should be known. An estimate of marginal product, at macro-level, can be provided by using the Residual Analysis. This technique has been very commonly used in the past. The assumption of this method is that the market price for resources, except for the one receiving the residual share, coincides with the value productivity of the same resource.[4] Market prices might be expected to equal the value product of the factor in the long run only under perfectly competitive conditions. There is no reason, however, to believe that this condition will hold true in the short run or in a dynamic economy having a mixed nature of competition.

Averages alone can serve to suggest marginal productivities and to provide an allocative basis for factors of production, only when the production function is linear and homogeneous. Under such production conditions, one encounters the existence of constant returns to scale and here marginal productivity is constant and equal to average productivity.

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[4]E. O. Heady, Economics of Agriculture Production and Resource use, (Englewood Cliffs: Prentice Hall, 1952,) pp. 404-406.

For macro level comparisons assumption of a linear homogeneous product-
ion function can theoretically be supported.[5]

For welfare comparisons, the incomes of people should be defined
in such a way that they reflect a clear picture of that part of the total
welfare which can be measured by money.[6] In this context, all other
economic and non-economic factors, which may affect welfare should be
taken into account. Such factors include distribution of incomes, asset
accumulation, difference in the cost of living, sociological and
psychological factors.

In order to test the above mentioned hypotheses, an analysis of
incomes in Canada was carried out by dividing the whole economy into two
major sectors - farm and non-farm. Generally, it is difficult to dist-
inguish the boundary between these two sectors, but for the purpose of
this study, a workable solution was devised. The farm sector in this
study was assumed to be composed of the group of individuals who are
directly (partly or fully dependent) related to the farming industry. In
terms of labor force it included farm operators, managers, part-time
owners, and unpaid family members working on the farms. The non-farm
sector in turn, was treated as a residual, i.e., whoever was not counted

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[5]For more arguments in support of a linear homogeneous production
function, see, W. J. Anderson, Productivity of labor, op. cit. p. 227.

[6]After A. C. Pigou, this part of the total welfare can be termed
as Economic Welfare.

on farms, belonged to the non-farm sector. The non-farm sector was sub-divided into five industrial sectors:[7]

1. Natural Resource Industries.   (NF .1.)

2. Manufacturing Industries.   (NF .2.)

3. Other Secondary Industries.   (NF .3.)

4. Tertiary Industries[8] excluding services.   (NF .4.)

5. Service Industries.   (NF .5.)[9]

To reduce the effect of aggregation, the total labor force was divided into two sub-categories, according to the nature of incomes: Self-employed workers, including proprietors, employers, and professional workers; and wage-earners, which were comprised of paid labor force only. Along with these two categories, comparisons for total labor force were also made.

Incomes in the farm sector were further analysed by classifying the sector according to four major criteria:  (1)  By regions  (2)  By size of the farm business measured as value of product sold,  (3)  By value of Capital investment, and  (4)  By type of farming enterprises.

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[7]A detailed list of industries included in these categories is attached in Appendix II.

[8]According to the standard classification, the industries have been divided as:
Primary— Those Producing products with income elasticity $< 0.5$
Secondary— "   "   "   "   "   "   between 0.5 and 1.0
Tertiary— "   "   "   "   "   "   $> 1.0$

[9]The notations in parenthesis indicate the code number of these industrial groups and are used to denote them in this study.

Due to data limitations, estimation of capital and management returns could not be made, particularly for the non-farm sector. Thus, most of the efficiency comparisons have centered around the labor returns in farm and non-farm sectors.

This is, in a nut-shell, the basic format of the analysis for this study. While making specific comparisons of incomes for efficiency and welfare, various techniques were adopted to introduce comparability in the data for the farm and non-farm sectors. The exact methodology followed for these esimations will be discussed in the following section.

## IV.   CONCEPTUALIZATION AND COMPUTATIONAL TECHNIQUES AND SOURCES OF DATA

A.  Conceptualization of Incomes:  Mostly the term 'income' is conceived as the annual salary or the estimated annual wage in money. However, for any individual his salary is not necessarily his total income, since many people also receive money from sources such as interest on invest-ment, and gifts, in addition to their salary.

The total income of an individual can be divided into real Incomes derived from material goods and services, and psychic incomes. In an economic study at the macro-level, components of the psychic incomes are very difficult to identify, and it will be almost impossible to estimate their share in total income.

Real income is defined by economists as a flow of commodities and services available over a given period of time.[10]  Real income is made up

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[10]I. H. Gross and E. W. Crandall, Management for Modern families, (New York: Appleton-Century-Crofts, Inc., 1959,) p. 138.

of two major items, direct incomes and indirect incomes. Direct income
consists of those goods and services which are available to an individual
without the use of money, such as farm grown products, fuel cut from the
home woodlot, etc.. Indirect incomes include those goods and services
which are available to the persons by means of exchange of money. In
addition to the indirect and direct incomes, money income can also be used
as payment of taxes, savings, gifts, etc.. Such a sub-division of total
income is analogous to the expenditure approach used for the national
income accounting. From the earning side, total income of any individual
can be defined as the total sum received from the business sector, as a
reward for selling factor services[11] plus the income received through
other sources such as gifts, investment, government payments. Income of
the individual thus, can be defined by using either the earning or the
expenditure approaches of income accounting. Each of these approaches
is consistent with the basic objective of income comparisons. From the
standpoint of efficiency measurement, an income should be defined from
its earning aspect, whereas, from welfare standpoint, according to its
expenditure aspect.

Earnings of an individual as a factor owner are dealt with differ-
ently in national accounts according to individual's status, such as the
returns for a labor will be different for wage earners, proprietors or
professional workers. As the main concern in this study is to estimate
returns to labor, the following concepts of labor income have been used:

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[11]This remuneration can come from more than one industry, in which
the person is engaged.

1. Income of total workers $(I_e 1)$:[12] It includes the incomes of wage earners, entrepreneurs, professional workers, and family members (if any), earned exclusively by selling the factor 'Labor'. The income of professionals and entrepreneurs, which is due to capital, is not included in this concept.

2. Income of wage earners $(I_e 2)$: This is the amount which has been earned by the wage-earning class only, i.e., the paid laborers. It includes the income of these workers as wages and salaries and supplementary labor income.[13]

3. Income of self-employed persons $(I_e 3)$: It is the income which is received as a return for labor and management; in other words the total earnings of the entrepreneurs less the amount due to capital and family members.

4. Real income of total workers $(I_e 4)$: It is the return to labor for all the workers in constant dollars.

For comparing welfare, incomes have been defined not for factor owners, but for individual consumers. Thus along with the remuneration of these persons as factor owners, from the sector in which they have been accounted, the concepts of income for welfare include incomes from government sources, gifts, income for owning more than one factor of production, and income from employment in other sectors. The sum of these incomes can be termed as total personal income from all sources. As all of this income is not at the disposal of the consumers, that part of this income which has been paid out as taxes should be deducted from it. The income

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[12]The notations in parenthesis represent the code of this concept and will be used throughout in this report.

[13]Supplementary labor income consists of other expenditure by employers on labor account that can be regarded as payments for employers services, such as employers' contribution to pension fund, workman's compensation, etc..

left after adjusting for taxes is termed Disposable income from all

sources, $(I_W 5)$. Along with money incomes, this concept also includes the

direct incomes to persons from different occupations. For the farm

sector, the indirect incomes include income in the form of farm grown

products, and value for the use of the farm house. These products are

valued at farm prices whereas consumption of similar products in non-farm

sector is valued at retail prices. Thus, the estimate of incomes in

kind for farmers, is biased downwards due to difference between retail

and farm prices. In order to allow for this difference, a retail price

adjustment in the value of farm kind incomes was added $(I_W 5.a)$. An

analogous concept $(I_W 5.b)$, but excluding the latter adjustment has

also been developed and has been shown along with the first one.

The method of computation of these incomes and the sources of

data, will be shown in section C(1) of this chapter.

B. Conceptualization of labor force: A treatment similar to that in the

case of incomes was given to the labor force definitions. Labor force

in the economy was viewed differently according to the objective of the

income comparison. From an efficiency point of view, labor force was

accepted as consisting of owners of factors of production only. Just

like incomes, these owners may be grouped into three categories:

Total workers, wage earners, and, self-employed workers.

In order that the concepts of labor force for farm and non-farm sectors

be comparable, certain adjustments in their size on the basis of differ-

ences in the characteristics of workers were made. It was suspected that

labor force in these sectors will differ mostly in terms of proportion of

female workers, proportion of child workers, and number of hours in a work week. The concept of labor as adjusted for all these 3 differences was termed: 'Normalized man equivalent'. An analogous concept, just by excluding the hours of work adjustment was also developed and it has been termed as 'Normalized man units'.

From the welfare standpoint, labor was viewed as total number of consumers in the farm and non-farm sectors. As the consuming units for the two sectors differ with respect to the female:male ratio, and age composition, an adjustment was made for these differences. The size of consuming units after adjusting for these differences was termed: 'Normalized adult units'.

The calculation of the estimates of these items will be described in section C(4) of this chapter.

C. Computational Techniques

1. Computation of Labor Incomes.

(a) Agriculture:

The residual method of analysis was used to calculate the agricultural labor earnings. The technique can be symbolized as follows:

$$NFI - SP + GTA - V_{c+l} + FI + FGR + W = \text{Agri. Labor Earnings.}$$

Where, NFI= Net farm income,
SP = Supplementary Payments.
GTA= Amount of grain transaction adjustment.
$V_{c+l}$=Imputed value of use of land and capital.
FI = Farm interest on indebtedness paid.
FGR= Farm gross rent paid.
W = Wages of Hired Laborers.

The data on net farm income, supplementary payments, interest, wages and rent paid was obtained from the Hand Book of Agricultural Statistics

Part II, Dominion Bureau of Statistics. The amount of grain transaction adjustment was taken from the National Accounts. Imputation of the use of land and capital was made by charging the value of land and capital at mortage rate of interest and unsecured loan rate of interest respectively. The value of farm land and capital during 1926-56 was taken from Lok's study.[14] For the period 1957-1961 this series was interpolated on the basis of 1961 census figures. Lok's study also provided the farm mortgage rates.

For provincial agricultural labor income, almost the same method was adopted, except in this case the interpolation of capital investment was based entirely on census figures. The provincial breakdown of the adjustment on grain transactions was taken from the Dominion Bureau of Statistics—Farm Cash Income (Quarterly) for the years 1960 to 1962; and the same proportions were used for the entire period.

(b) Non-agriculture:

The non-agricultural labor income consists of two major categories; the wages, salaries and supplementary labor income, obtainable from the Dominion Bureau of Statistics National Accounts and the unincorporated non-farm business incomes. The latter group incomes are composed of: Income of unincorporated business proprietors and incomes of professional workers. The data for these incomes for different industries and regions

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[14]S. H. Lok, An Enquiry into the Relationships Between Changes in Overall Productivity and Real Net Return per Farm, and Between Changes in Total Output and Real Gross Return. Canadian Agriculture, 1926-57, Technical publication, Canada Department of Agriculture, Economics Division, Ottawa, 1961.

was obtained from the National Accounts. But as the income for unincorporated business is not just that for labor of the proprietors; it includes the opportunity earnings of the unpaid family workers and return on capital investment in the professional business, an adjustment for these items was made.

To adjust these incomes for the first item, the number of unpaid family workers, by province and industry, was estimated from the census and the labor force surveys. This figure was converted into N.M.E.[15] by using the same ratios as those used in the case of total labor. The figure of N.M.E. was multiplied by earnings per NME of paid labor, and this product was subtracted from the unincorporated business income.

The capital share out of the professional business was calculated as follows: The net stock of capital in 1949 dollars in the total economy was obtained from Hood and Scott's study.[16] It was converted into current dollars after deflating it by the business capital formation price index. On the other hand, total depreciation fund for 1926-55 was taken from the National Accounts, and a function was fitted between the capital value and depreciation fund. From the National accounts, depreciation fund in professional business was obtained. After multiplying this fund by the regression coefficient, an estimate of value of capital in total professional business was obtained. After deducting from it, the value of farm

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[15]The procedure of normalization is discussed on page (88) of this chapter.

[16]W. C. Hood and A. Scott, Output, Labor and Capital in Canadian Economy. Report of the Royal Commission on Canada's Economic prospects, (Ottawa: Queen's Printers, 1957).

capital (excluding the value of land) the value of non-farm professional business capital was obtained. The capital share in these business was estimated by charging five percent rate of interest on this value of capital.

The individual industry and region's share of the capital in professional business was based on the distribution of total professional income by Provinces and industries. These data were obtained from the Taxation Statistics.

2. Computation of Total Personal Income From All Sources in Farm and Non-farm Sectors.

(a) Agriculture:

The concept of income used in this case was the disposable income of farm people. The term 'Farm people' included operators and their dependents along with the family members of paid labourers. Disposable income included the following items:

> Net income from farming including the amount of grain transaction adjustment, Income from non-farm employment, Income from government transfer payments, Investment incomes and Incomes from boarders, and, the income of paid labor force.

Personal income tax paid by the farmers was deducted from it, in order to get disposable income.

Net farm incomes were obtained from the Handbook of Agricultural statistics, Part II, (Farm Incomes). These estimates included the supplementary payments to farmers. Income from the non-farm employment was estimated as follows:

The figure was arrived at by estimating the number of days worked outside farming, multiplied with the wage per day in different industries. The statistics of wage per worker by industries were obtained from the Canada Year Book 1962. The number of days worked outside the farm, by farm operators and their family members in the non-farm sector, by industries, were obtained from the 1941, 1951 and 1961 censuses. For 1951, the breakdown of number of days worked outside by industries was not available, so it was obtained through interpolating the 1941 and 1961 census figures. Similarly, the number of days worked off-farm were also interpolated for the inter-census years.

The income from investments to farmers was obtained as:

$$DAI - G_t I - BC_{\pi} = Inv_F$$

$$G_t I = GE_{\pi} + GIR - IPD$$

Where, $DAI$ = Domestic Agri. Investment income.
$G_t I$ = Government investment income.
$BC_{\pi}$ = Business corporation profits in agri.
$Inv_F$ = Personal investment income of farmers.
$GE_{\pi}$ = Profit of government enterprises.
$GIR$ = Interest received by government.
$IPD$ = Interest on public debt.

All these three series of data in the last equation were obtained from the National Accounts. In order to estimate government's investment income in agriculture, a proportion of government investment income to the total domestic investment income was calculated, and the same proportion was charged to the agricultural sector. Business corporation profits were obtained from the Taxation Statistics. Domestic agricultural investment income was taken from the National Accounts.

Income from boarders and roomers was obtained by interpolating
the income received by this source in the 1941 census and that in the
1958 farm business survey.

Because of unavailability of data for the farm sector, the follow-
ing items were excluded from the estimate:  Veteran Pensions, Local
allowances, Workman compensation, other pensions, annuities, inheritance,
income tax refunds, and gifts.

The estimate of income from the government transfer payments was
the most difficult one to make, because these payments were made in
various forms and in order to arrive at a total, an estimation of its
individual components was necessary.  Their estimation was made, by
dividing these payments according to the level of government at which they
were paid, i.e.  payments made by Federal government, by Provincial govern-
ment, and by both.  The detailed procedure for these estimates has been
given in Appendix IV.

As the farmers' income from home grown items is underestimated to
the extent that the rest of society purchases such products at retail pri-
ces, an evaluation of these differences was made.  This adjustment in
this study has been referred to as Farm Kind Income Valuation Adjustment.
(KIVA).  The valuation of this difference was made by dividing the total
kind incomes into four major product categories:  Livestock products,
Field products, Forest products, and Farm housing.

The livestock and field products were further broken down into
individual commodities, and their contribution to the total was calcu-
lated on the basis of data given by 'Quarterly Bulletin of Agricultural

Statistics', 1947 and 1949 for the period 1938 to 1947. The prices for these commodities for the year 1961 were obtained from the Economics Division, Manitoba. Corresponding urban prices were obtained from Dominion Bureau of Statistics Urban Food Retail Prices. The farm prices for Manitoba were adjusted to the level of all-Canada farm prices on the basis of Western Canada and All Canada farm price index numbers. This adjusted price was used to calculate the urban prices as percentage of farm, and a weighted price index was made according to the relative contribution of different commodities as already calculated. To get the conversion ratio between 1926-61, the ratio of farm prices and city food prices was calculated. Taking 1961 as base, an index of this ratio was computed, which when multiplied with the original conversion ratio for 1961, gave a series for 1926-61. This ratio was used to convert the farm kind incomes from livestock products. An analogous estimation was made, in the case of field products.

The conversion ratios for the forest products were obtained by finding out the average fuel expenditure per family in rural areas for the year 1934 from the Dominion Bureau of Statistics Publication - Index number of farm living costs 1913-1938. Taking into account the change in farm Cost index, it was interpolated for the years 1947-48, 1953, 1955, 1957 and 1959. For these years the corresponding urban expenditure on fuel was obtained from the City Family Expenditure Surveys. The average ratio of farm urban fuel cost for all these years was taken to evaluate the farm forest product value.

The adjustment for the farm housing rental value at par with urban rents, was made by analysing certain characteristics of housing for the two sectors. For the census years, data was obtained with respect to the value of owned houses in urban areas, age of the house, average number of houses having different types of facilities like bathroom, toilet, sewage disposals, water system, furnace heating, and so forth. To the data on rent, three types of adjustments were made, (1) Adjustment for the years of construction, in terms of houses requiring major repairs, (2) Adjustment for average change in values of houses due to presence of various facilities, or their absence, and (3) Adjustment in the technique of computing cash rents. The adjustment for the first two items, was made in terms of opportunity costs, deducted from the urban housing values. The cost figures for various facilities were taken from the Agricultural Engineering section of the Manitoba Department of Agriculture, for urban as well as for farm houses. By taking into account the level of existing facilities, a charge was imputed to the cash value of homes. The last adjustment was in terms of charging the same 10% cash value as rent, for the two sectors. The ratio of the two rents for different census years, was used to adjust the farm house rents. The various ratios obtained for different years and various products have been summarized in the table VIII.

The over all effect of this adjustment is fairly obvious, i.e., the farm incomes situation improved tremendously when this adjustment was made.

TABLE VIII

RATIOS FOR THE EVALUATION OF THE PRICE DIFFERENTIALS

OF FARM INCOMES IN KIND

| Period. | Ratios Livestock products. | for Field products. | Fuel products. | Farm house rents. |
|---------|------------|------------|------------|-----------|
| 1926-30 | 1.25 | 2.66 | 3.61 | 2.93 |
| 1931-35 | 1.79 | 3.29 | 3.61 | 2.93 |
| 1936-40 | 1.43 | 2.91 | 3.26 | 2.93 |
| 1941-45 | 1.46 | 2.25 | 3.26 | 2.93 |
| 1946-50 | 1.30 | 2.20 | 2.54 | 2.93 |
| 1951-55 | 1.66 | 2.45 | 2.54 | 2.93 |
| 1956-60 | 1.85 | 2.67 | 3.40 | 2.93 |
| 1961 | 1.89 | 2.69 | 3.40 | 2.93 |

Source: Estimated on the basis of data of farm incomes in kind as supplied by Agricultural Division, Dominion Bureau of Statistics, Ottawa.

(b) Non-agriculture:

The non-agricultural total disposable income was worked out as a residual. The total personal disposable income for a year was taken from the National Accounts. From it the following items were deducted: Farm disposable income as calculated in the previous section, veteran pensions, local allowances, workman compensation, and annuities.

3. Labor Income in Constant Dollars:

(a) Agriculture:

Two methods were employed to estimate the constant dollar residual product of labor. Method 1. can be called as All-Item Deflation Method, which can be symbolized as:

$$\text{Residual Lab. Product in constant \$.} = \frac{GI}{I_{fp}} - \frac{FEXP}{I_{sc}} + \frac{I}{I_{ti}} + \frac{W}{I_w} - LM_c - C. IN_c$$

Where, GI = Gross income.
FEXP = Farm expenditure.
$I_{fp}$ = Index of farm prices.
$I_{sc}$ = Index of services and commodities used by farmers.
I = Interest on indebtedness.
$I_{ti}$ = Index of taxes and interest.
W = Wages of hired labor.
$I_w$ = Index of paid farm help.
L = Value of farm land.
$M_c$ = Constant Mortgage interest rate.
C = Value of farm capital
$IN_c$ = Constant Interest rate.

2. The second method used was - to deflate the labor product by the index of farm prices.

The second method was used at 4 different bases, 1926, 1935-39, 1949, and 1961, in order to estimate the constant dollar income of the total labor per NME.

(b) Non-agriculture:

The second method of computing the agricultural labor product was employed in this case. The only item which required an estimation was the price index of the commodities of various industries.

The index for the prices for non-agricultural products was calculated as follows: The data of national expenditure for Canada was obtained from the Dominion Bureau of Statistics, National Accounts, in current and constant dollars. The value of capital formation and residual error were deducted from both sides. The ratio of current over constant dollar income gave the price index of products in the Canadian economy. The non-agricultural products' price index for the same year was obtained as:

$$I_{NA} = \frac{I_{TE} \cdot 100 - I_{FP} \cdot C_{AG}}{C_{NAG}}$$

Where, $I_{TE}$ = Price index of the products in the Canadian Economy.

$I_{FP}$ = Index of farm prices.

$C_{AG}$ = Contribution of Agriculture to total income.

$C_{NAG}$ = Contribution of non-agricultural sector to total income.

The contribution of the two sectors was calculated in terms of labor wages and unincorporated business incomes. This procedure was repeated for each year and an index over time was obtained.

Price index for the products of resource industries (Mining, forestry, fishing, hunting and trapping, etc.) was obtained by taking a weighted average of the price index of the products of these industries.

The price index of the products of the manufacturing index was obtained by taking an average of the prices of raw and fully manufactured products.

The price index of products of other industries (Trade, Other secondary, and service industries.) was obtained by a technique similar to that used in the estimation of the non-agricultural products price index.

4. Estimation of Labor Force For Farm And Non Farm Sectors

(a) Total Labor Force:  Industrial distribution of total labor force in Canada was obtained from the following sources:  For 1926-31- Hood and Scott's estimates (As compiled in Royal Commission on Canada's Economic Prospects, op. cit., p. 196.)  For 1931-45- Dominion Bureau of Statistics, Ref. Paper no. 23, Revised estimates of Canadian labor force.  For 1946-61 Canadian Statistical review 1959 and its subsequent issues.  The inform-ation derived from these publications consisted of the total persons with job and paid workers in farm and non-farm sectors.  Dominion Bureau of Statistics Ref. paper no. 23, and Canada Year Book, 1962 furnished information on industrial distribution of labor during 1931-61, whereas for the period 1926-30 an interpolation was made on the basis of 1921 and 1931 census figures.

Provincial estimates of the labor force in farm and non-farm sectors were made on the basis of census data.  Data on the labor force from all the four censuses (1931, 1941, 1951, and 1961,) were taken, and after being normalized[17] the total for each year was compared with the total normalized labor force of Canada.  The year which gave the closest results was selected and an interpolation for the rest of the period was made on its basis.

Normalization of the labor force data in the farm and non-farm sectors was done with respect to  (1)  Differences in the proportion of women workers,  (2)  Differences in the age structure of the working

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[17]The procedure of normalization will be discussed in the following paragraphs.

force, and (3) Differences in the hours of work. The procedure consisted of expressing female and child labor input in a particular industry, in terms of male adult units. The hours of work adjustment was done for the workers of various industries for inter-industrial differences only. The importance of the last adjustment is clear from the argument that the agricultural laborer has to put in hard and longer hours of work relative to a non-agricultural one. And in order to make a valid comparison, this issue cannot be ignored. But it has also been argued that the current statistics do not estimate correctly the hours of work put in by the agricultural laborers. A good deal of over-statement in the hours per worker has been indicated. As the size of this bias is considerable, while developing the concept of normalized man units only the adjustments for female and child laborer were made.

The coefficients for adjusting the labor force were computed with the help of the data obtained from census and other labor force surveys. These coefficients have been presented in the Appendix III. Number of female workers for various industries during 1946-60 were obtained from Canada Year Book, 1961. For the period 1926-45, figures, interpolated on the basis of census were used. The female conversion ratio was obtained by taking the average yearly wages of female workers in a particular industry and dividing it by that of a male worker. For this purpose, data was mostly obtained from the census, and an average ratio was obtained.

Age structure of the labor force in different industries was collected in terms of workers between 14-20 years of age and those over 20 years. Census figures were again taken as a means of computing the conversion ratio. Only 1931, 1941 and 1961 census figures were consulted as during 1951 there was a change in the concepts and the figures were not comparable.

Hours of work in agriculture for the period 1945-55 were taken from Hood and Scott's estimates. For 1956-61, estimation was made on the basis of the information contained in annual labor force survey of Dominion Bureau of Statistics (Labor force, Nov. 1945 to July 1958, 71-502, Occasional, and monthly series of the same for 1958 onwards.) For non-agricultural industries, these figures were obtained from the Canadian Statistical Review 1959 and its subsequent monthly issues.

The sources and derivation of the regional conversion ratios were the same as the industrial sources. But in this case no hours of work adjustment was made, because it was assumed that each province's breakdown of labor force by industries was uniform.

The normalization procedure as used in this study can be shown as follows:

$$\begin{array}{c}\text{No. of}\\\text{males.}\end{array} + \begin{array}{c}\text{No. of}\\\text{females.}\end{array} \times \begin{array}{c}\text{Female}\\\text{wage}\\\text{ratio.}\end{array} = \begin{array}{c}\text{No. of}\\\text{male}\\\text{workers.}\end{array} \times \begin{array}{c}\text{Prop. of}\\\text{child}\\\text{labor.}\end{array} = \begin{array}{c}\text{No. of}\\\text{child}\\\text{workers}\end{array} \times \begin{array}{c}\text{Age}\\\text{wage}\\\text{ratio.}\end{array} = \begin{array}{c}\text{C}\\\text{M}\\\text{U}\end{array}$$

(C M U = Converted male units.)

$$\begin{array}{c}\text{No. of}\\\text{male}\\\text{workers.}\end{array} - \begin{array}{c}\text{No. of}\\\text{child}\\\text{labor.}\end{array} = \begin{array}{c}\text{No. of}\\\text{adult}\\\text{workers,}\end{array} + \begin{array}{c}\text{C}\\\text{M}\\\text{U}\end{array} = \begin{array}{c}\text{Total}\\\text{male}\\\text{workers}\\\text{or}\\\text{normalized}\\\text{man units.}\end{array} \times \begin{array}{c}\text{Index}\\\text{of hrs.}\\\text{of work.}\end{array} = \begin{array}{c}\text{Normalized}\\\text{man equivalents}\\\text{of labor force.}\end{array}$$

The same normalizing procedure was followed for each of the industries and provinces separately.

(b) Wage Earners:  The paid workers by different industries were taken from the same sources as the total labor force.

For the regional distribution, in agriculture sector, data was obtained from the monthly surveys of labor force for the years 1945-61. For the rest of the period, 1931 and 1941 census figures were used.  For the non-agricultural sector the figures were computed as:  For 1926-30- Data was based on an index (1931 = 100) of the growth of labor force in Canada.  For 1931-41-  Linear interpolation and for 1941-61 computed from Monthly labor force surveys of D.B.S.

The procedure of normalization was the same as that for the total labor force.

(c)  Self-employed Workers:  From the D.B.S. Labor force surveys for 1946-61, the actual number of own account workers was taken.  The ratios for normalizing these, workers were obtained from the census.

For the agricultural sector, the number of farm operators was taken from the same surveys.  The only adjustment made in this case was that of the hours of work because there was not much evidence that a large proportion of female and youths were operators.

(d)  Computation of Number of Normalized Adult Units in Farm and Non-farm

Sectors:  In order to make the family composition comparable, the age structure of the families in the two sectors were normalized into adult equivalents with the help of the following conversion ratios:

| Children | 0– 14 yrs. ... | = 0.6 adult unit |
| Males | 15– 18 " ... | = 1.2 " " |
| Females | 15– 18 " ... | = 0.9 " " |
| Males | 19– 60 " ... | = 1.0 " " |
| Females | 19– 60 " ... | = 0.9 " " |
| Males | > 60 " ... | = 0.9 " " |
| Females | > 60 " ... | = 0.7 " " |

These conversion ratios were developed by C. Zimmerman for comparing the expenditure for farm, village and city families.[18]

The number of persons for this breakdown of ages was obtained from the 1941, 1951, 1956 and 1961 censuses, and an interpolation was made for the inter-census years.

(e) Adjustment for Part-time Farm Workers: The number of weeks worked outside the farm for the farm operators, for the census years was obtained from census, along with the number of weeks' work put in by the paid worker. Assuming that a full time operator was employed for the same length of time as a paid worker, the extent of part-time work was obtained by dividing the number of weeks of farm operator labor by that of paid worker. The number of persons reporting part-time work was also obtained from the census. By multiplying the number of persons reporting part-time work by the ratio obtained in the first case, these persons were converted into full time operators. An adjusted number of full-time operators was derived by subtracting from the full time farm operators the difference between the number of adjusted and unadjusted part-time operator. Dividing the total operators' income by this number, led to the farm operators' income per NME adjusted for part-time work.

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[18] Cited in, E. L. Kirkpartrick, P. E. McNall and M. L. Cowles,

5. <u>Intra-agricultural Income Disparity</u>:

To visualize the income disparity within agriculture, four cross-classifications were made:

1. By geographical location – grouped by provinces and/or by regions.[19]
   The collection of data and analysis was the same as discussed in the case of labor product by regions.

2. By size of farm as measured by the value of product sold.
   This computation was made on per farm basis as the data on the number of persons being supported by these farms were not available.

3. By major enterprise on the farms, and,

4. By value of farm capital.

The incomes in the last three classifications were calculated only for the commercial farms; part-time, institutional and other farms were excluded. Furthermore, the estimates were made for the income from farming as well as that from all other sources, for the year 1958 only. For the last three classifications, data was procured from the Dominion Bureau of Statistics, 1958 farm Business, Income and Expenditure, Survey division.

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<u>Farm Family Living in Wisconsin</u>, Agri. Expt. Station of Wisconsin, (Madison: Res. Bull. no. 114, Jan. 1933.) p. 6.

[19]All the 9 provinces were grouped into 5 regions, Prince Edward Island, Nova Scotia and New Brunswick into Maritimes, Quebec, Ontario; Manitoba, Saskatchewan and Alberta into Prairies; and British Columbia. The data of New Foundland was excluded from all the Maritime estimates.

# CHAPTER VI

## RELATIVE LABOR EARNINGS IN THE CANADIAN ECONOMY

The agricultural problem in North America has usually been diagnosed as a price problem, created by an overly rapid increase in farm output.[1] Such a diagnosis in the past has put more emphasis on programs such as price support and output control. However, it has also been realized that these programs do not solve problems of farmers; as such programs neither provide farmers with adequate incomes, nor do they induce adjustment of resources.[2]

The resource adjustment problem in agriculture has been described as stemming from the following four factors:[3]

1. The continuing drive by the farmers for use of technological advances.

2. A high birth rate on farms.

3. A consumer demand situation placing a greater premium on increased output of non-farm goods and services; and

4. The inability of an average farm size to realize the main cost advantages of modern mechanization fully.

The need for the adjustment of resources arises due to the fact that certain forces of adjustment are acting on individual farming

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[1]G. S. Shepherd, _Farm Policy: New Directions._ Iowa State University Press, Ames. 1964. pp. 17-35.

[2]W.W. Cochran, _Supply Management - The Way it Works._ Address, National Institute of Animal Agriculture, Purdue University, April 9, 1962, p. 3.

[3]E. O. Heady, _Adjustment Problem in The Corn Belt and Midwest,_ Policy for Commercial Agriculture, _op. cit._ p. 179.

units so as to: (1) Encourage the operator to move off a farm which is inadequate in size to fully employ the labor available. (2) Encourage the operator on an inadequate sized unit to work additional land, as it becomes available from people who leave farming to take other work. (3) Encourage the operator and his family who live on an inadequate sized unit to seek part-time employment off the farm, where they can't or don't desire to obtain additional land to work.[4] In most of these instances, incomes act as the main incentive motivating the resource owners to take decisions which are favourable to him, and in turn, to the industry as a whole.

A meaningful description of the problems of farm incomes, relevant for developing suitable public policies, can be made if certain assumptions regarding farmers' interest in incomes are brought into the picture. In economic terms it seems reasonable to assume that farmer's interest mainly lies in attaining a level of income which could be reasonable in relation to that in alternative employments. At the same time he will also prefer to have a stable income that does not tend to be chronically low. If these goals are correct, then the income problems for a farmer can be classified into three categories:

(a) Differences between the incomes of farmers and those of non-farmers,

(b) Disparity of incomes within agriculture,

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[4]F. A. Kutish, The Current, Situation in Agriculture, A Basebook for Agricultural Adjustments in Iowa. Part I, Sp. Rep. no. 20, Iowa State College, Ames, Oct. 1957.

(c)   Income instability over a period of time.

This Chapter is devoted to a discussion of the problem of differential between farm and non-farm incomes; particularly as it relates to comparison of efficiency of resource use in an economy. The other two problems will be discussed in Chapter VII.

The analysis of economic efficiency is a very broad and complex field, particularly at the aggregate level. At this level, a research worker is concerned not only with defining the conditions under which resources are used efficiently, but also with the explanation of the existence of various productivity differentials. Such an analysis can be undertaken from the standpoint of generation and distribution of incomes in various industries of an economic system. Relative differences in the returns for the same factor in various industries may be accepted as an indicator of maladjustment of resources in the economy. Since increasing the efficiency of resource use is a necessary condition for enhancing economic growth in the economy, its study and analysis is very important. This chapter deals with the pattern of incomes in the Canadian economy for its various industries and regions. The presentation in this chapter starts with a discussion of the agricultural industry in Canada, followed by a description of relative incomes of agricultural and non-agricultural industries. An evaluation of the factors affecting the efficiency of labor use in Canadian agriculture is also made.

## I. CHANGES IN CANADIAN AGRICULTURE

Changes occurred in the agricultural industry in Canada can be grouped into two categories: (A) Changes in the relative size of agriculture, and (B) Changes in the structure of the agricultural industry.

A. <u>Relative Size of Canadian Agriculture</u>: Industrialization and prosperity together with large immigration and natural population growth have made a strong impact on Canada's agricultural products and markets since 1950.[5] One such impact is the relative shift in the importance of agriculture in the total Canadian economy. This tendency has been exhibited by the decline in the relative size of agriculture.

The declining relative size of agriculture in an economy has been regarded as a natural law, originating from the consumers: It has mainly resulted from consumers' behavior, as they put a higher premium on wants of a particular type.[6]

Four measures were selected to estimate the relative size of agriculture: Size of agricultural labor force, value of agricultural gross domestic product, value of agricultural production, and the

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[5]M. Ogdon, <u>Canadian Agriculture - Its competitive Position</u>, United States Department of Agriculture, Foreign Agriculture report no. 110, July 1958, p. 1.

[6]The Consumers' role in adjusting the pattern of production has been widely accepted. With increasing rate of economic progress, certain products are demanded proportionally less than increase in incomes; whereas certain others, in higher proportions.

value of agricultural commodities exported.[7] These indicators along

with the per capita personal income, which in a crude way represents

the rate of economic progress, are presented in chart 1.

The contribution of agricultural domestic products to total

domestic product in Canada during 1926-61, has remained fairly cons-

tant as compared to that of other items, particularly during 1935-50.

During 1951-61, it has indicated a continuous declining trend, perhaps

because of an unfavorable movement in agricultural prices relative to

prices of non-agricultural products. Almost the same trend has been

exhibited by the value of agricultural production. On the other hand,

exports of agricultural products have undergone a relatively rapid

change, except during the war years of 1940-43. Moreover, the chart

helps one to conclude that along with the rising trend of per capita

income in Canada, agriculture has been undergoing a decline in its

relative importance in the total Canadian Economy.

Directly linked with the decline of agricultural gross product

was the relative reduction in the size of the agricultural labor force.

During 1931-61, the agricultural labor force was reduced by approxi-

mately 479,000 persons, a decline of about 42.5 percent of its size in

1931. (Table IX.) Most of the persons displaced from agriculture

were absorbed by the non-agricultural sector. In Canada during the

period 1931-61, the labor force has undergone many occupational changes.

Total labor force in Canada during the 30 year period increased by about

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[7]The statistical details for these items have been presented in
appendix (V).

CHART I

PER CAPITA INCOME AND SELECTED INDICATORS OF SIZE OF

AGRICULTURE - CANADA.  1926-61.

(As % of Total)



PER CAPITA
PERSONAL INCOME

VALUE OF AGRI.
EXPORTS

VALUE OF AGRI. PROD.

AGRI. LABOR

AGRI. G.D.P.

% OF TOTAL

PERSONAL INCOME

YEARS
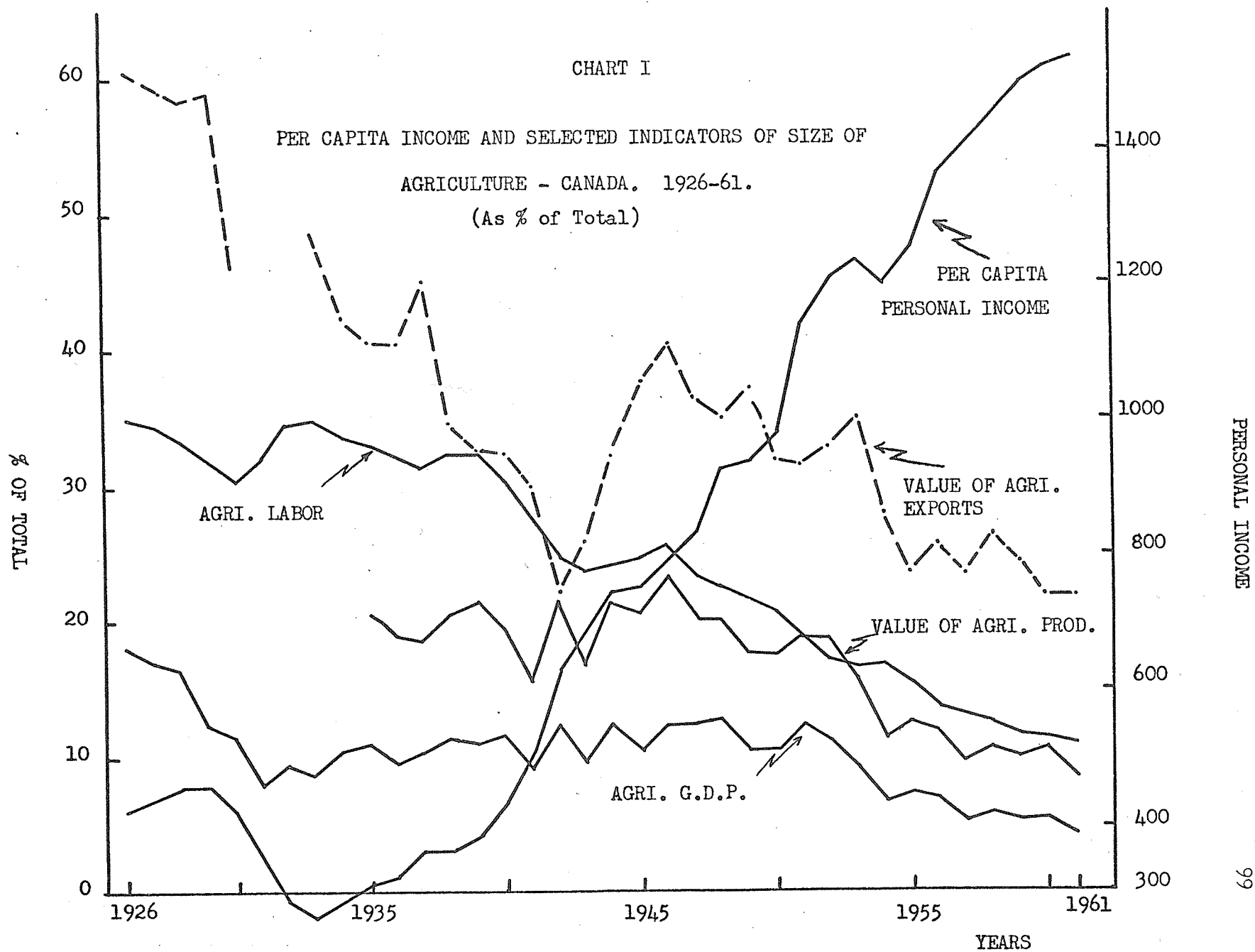
(Based on data presented in Appendix V)

TABLE IX

PERCENTAGE DISTRIBUTION OF TOTAL LABOR FORCE BY MAJOR

OCCUPATIONAL GROUPS IN CANADA, 1931-61.

| Occupation. | % to total labor force in | | | | Δ in % during 1931-61. | Workers in 1961 as % of 1931. |
|---|---|---|---|---|---|---|
| | 1931 | 1941 | 1951 | 1961 | | |
| White collar | 24.4 | 25.2 | 32.5 | 38.6 | + 14.2 | 155.4 |
| Manual | 33.8 | 33.4 | 37.6 | 34.9 | + 1.1 | 67.2 |
| Service | 9.3 | 10.5 | 8.6 | 10.8 | + 1.5 | 88.0 |
| Agriculture | 28.8 | 25.8 | 15.9 | 10.2 | - 18.6 | - 42.5 |
| Other primary industries | 3.7 | 4.8 | 4.2 | 2.9 | - .8 | 23.1 |
| Not stated | -- | .3 | 1.2 | 2.6 | ---- | -- |
| All Occupations | 100.0 | 100.0 | 100.0 | 100.0 | - | 61.7 |

Source: Occupational Trends in Canada 1931 to 1961. Department of Labour, Economics and Research Branch, Sept. 1963. Ottawa.

62 per cent. A major portion of this increase was a result of an increase in White Collar Workers, i.e., the proprietors, managers, professionals, clerks, etc. Labor in the Service industries also showed a substantial increase during this time period. In contrast to an 18.6 per cent decline in the agricultural labor force, there was an increase of White Collar Workers by 14.2 per cent. A slight increase in the manual and service class labor also occurred.

The majority of workers leaving agriculture were employed by tertiary industries; mainly because agricultural development favours their expansion.[8] During the 1931-61 period, the contribution of the

[8]The tertiary industries, as already mentioned in Chapter V,

primary industries, as a whole, to the utilization of the labor force, in relation to the total was reduced by 18.7 per cent; out of which 9.4 per cent was channeled into secondary industries and 13.9 per cent into tertiary industries. (Table X). The increased size of the labor force in the tertiary industries was made possible by an expansion of government services and financial institutions, which have shown the highest relative increase in their size.

Thus, during the last three decades, Canadian agriculture has been undergoing a relatively rapid change. Particularly the relative size of Canadian agriculture, as measured by the value added method, has fallen substantially. The behavior of Canadian agriculture, as exhibited in the past can be justified on economic grounds. In any economic system, farm and non-farm sectors have certain relationships, which in the long run are the changing ones. Agriculture plays an important role in primitive (undevelopped) economics, and eventually loses its dominance once an increasing pace of development sets in.

Close interdependence of agriculture and industry has always existed in an economic society, although its patterns may be many in the process of economic evolution.[9] The linking factors that give rise to the interdependence of the two sectors can be visualized as: (1) food (2) raw materials, and (3) labor force.

are those which produce products whose income elasticity coefficient is more than 1.0. Thus, as the income of consumers increases, it means that the demand for these products should increase, which leads to their expansion.

[9] P. Chang, Agriculture and Industrialization. (Cambridge: Harvard University Press, 1949), p. 23-56.

TABLE X

EMPLOYMENT BY INDUSTRIES AS A PERCENTAGE TO THE TOTAL LABOR FORCE,
CANADA, 1931 and 1961.

| Industry | 1931[a] | | 1961 | | Δ in % of the total | Relative change |
|---|---|---|---|---|---|---|
| | No. of Workers | % of total | No. of Workers | % of total | | |
| Agriculture | 1115 | 28.5 | 674 | 11.1 | − 17.4 | − 39.6 |
| Other Pri.[b] industries | 169 | 4.3 | 183 | 3.0 | − 1.3 | 8.2 |
| Total Pri. Industries | 1284 | 32.8 | 857 | 14.1 | − 18.7 | − 33.3 |
| Manufacturing | 630 | 16.1 | 1515 | 25.2 | 9.1 | 140.5 |
| Cons. | 256 | 6.5 | 406 | 6.7 | .2 | 58.6 |
| Trans. | 325 | 8.3 | 509 | 8.4 | .1 | 56.6 |
| Total Sec. Industries | 1211 | 30.9 | 2430 | 40.3 | 9.4 | 100.7 |
| Trade | 387 | 9.9 | 983 | 16.2 | 6.3 | 154.0 |
| Finance | 91 | 2.3 | 239 | 3.9 | 1.6 | 162.6 |
| Govt. Serv. | 116 | 2.9 | 382 | 6.3 | 3.4 | 229.3 |
| Other Serv.[c] | 649 | 16.6 | 1160 | 19.2 | 2.6 | 78.7 |
| Total Ter. Industries | 1243 | 30.7 | 2764 | 45.6 | 13.9 | 122.3 |
| Unstated | 171 | 4.6 | --- | --- | --- | --- |
| Total All Industries | 3909 | 100.0 | 6049 | 100.0 | --- | 54.7 |

[a] The figures were adjusted for changes in the definition.

[b] They include Forestry, Fishing and trapping, Mining, Quarring and Oil Wells.

[c] They include, business, personal, community and public and recreational services.

Source: 1931 census for the figures of 1931. For 1961,
I. F. Furniss and S. W. Garland, Agriculture in the National Economy.
Economics Division, Canada Dept. of Agriculture, Ottawa, Nov. 1963.

Interrelationships of food can be defined as a function of natural population and occupational shifts. As food is one of the basic necessities, agriculture is usually treated as one of the most important industries. Supply of basic raw materials forms the second link. During the process of economic development, industries using agricultural products increase. Theoretically if agriculture has predominance of such products, its cyclical fluctuations should run parallel to industry. Hansen analogized it as "Agriculture becoming more and more the football of business."[10] Technological development and distribution of natural resources furnishes the third link. The farm sector is one of the most important contributing sectors, particularly with respect to the labor force. Mobility of surplus labor is regarded as a consistent answer to the low farm income problem. It has been argued that if freedom of choice to work either in agriculture or out of it can be achieved or maintained, real incomes to farmers should not long remain far out of balance with real incomes in comparable non-farm occupations, even though urban workers and industries may have somewhat more direct control over prices and incomes than have farmers.[11]

B. <u>Changes in the Structure of Agricultural Industry</u>: - The Agricultural industry in Canada at present consists of 481,000 farms,

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[10] A.H. Hansen, The Business Cycle and its Relation to Agriculture. <u>Journal of Farm Economics</u>. Jan. 1932.

[11] T. W. Schultz, <u>Agriculture in an Unstable Economy</u>. (New York: McGraw Hill Company, 1956) pp. 85-97.

supporting about 2.1 million persons, directly or indirectly. The relative size of the industry during the last thirty-five years, as revealed by the aggregate tendency of its share of the total is declining. This declining trend has led the industry to undergo many structural changes. The various structural changes in the industry can conveniently be divided into three categories: Changes in the (1) agricultural organization, (2) agricultural inputs and outputs, and (3) farm income situation.

(1) General Pattern of Changes in Agricultural Organization: - The major change in the Canadian agricultural organization has been one of the changes in the number of farms. The number has reduced, mainly due to the migration of marginal and sub-marginal farmers to other sectors of the economy. Between 1921 and 1961, there was a drop of 230,000 farms. This is about thirty-one per cent of the 1941 number of farms. The change was one of continuous decline. (Table XI).

The decrease in the number of farms has also been accompanied by a decrease in the number of owner occupied farms, but not in the same proportion. The fall of the owner occupied holdings is relatively less pronounced than that in the total holdings except during 1956-1961. This partly may be explained in terms of the mobility of labor by type of farmers. For example, with increasing prosperity in the non-farm sector, the small farmers may start leaving farming first. But many of these farmers may, during such periods, not leave completely; they might tend to remain partly attached to it.[12]

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[12]It will occur particularly in areas which are economically

TABLE XI

TRENDS IN CANADIAN AGRICULTURE, 1921-61

(Index 1941=100)

| Indicators. | 1921 | 1931 | 1941 | 1951 | 1956 | 1961 |
|---|---|---|---|---|---|---|
| No. of farms | 97 | 99 | 100 | 85 | 78 | 66 |
| Owner occupied farms | 111 | 106 | 100 | 87 | 80 | 64 |
| Average size of farm | 83 | 94 | 100 | 118 | 127 | 151 |
| Improved area per farm | 79 | 94 | 100 | 123 | 138 | 169 |
| Capital Investment per farm | – | 124 | 100 | 264 | 304 | 473 |
| Cash Income per farm | – | 52 | 100 | 361 | 370 | 501 |

Source: The figures for these variables are taken from the Hand-Book of Agricultural statistics, and its supplements – Trends in Canadian Agriculture. Dominion Bureau of Statistics, Reference paper no. 25 (21-503), Aug. 1955.

Rapid technological changes have contributed to the change in number of farms and to the change in economic structure of agriculture. Agriculture has been regarded as undergoing a technological revolution. The revolution includes the mechanization and electrification of farms, replacing man power and horse power with engines, biological changes such as hybrid corn, use of fertilizers and insecticides. It has resulted in the increased average size of farm, increased improved area

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very progressive, and very close to industries. In the vicinity of big industrial concerns, many farmers may be working full time, in the non-farm sector; whereas in the crop season they might also undertake certain part-timely jobs in agriculture.

per farm, and increased Capital investment per farm. Capital invest-
ment per farm in 1961 was 373 percent of the 1941 level (Table XI).
Most of this increased investment is accounted for by machines, larger
inventories of productive livestock, and by increases in the value of
farm land.

(2) Changes in The Farm Inputs and Output: – Most of the technical
changes in agriculture increased farm output from a given set of con-
ventional resources; that is, the industry produces more per unit of
resource now than about three decades ago. The output of farm products
in Canada, though fluctuating violently from year to year, has been
increasing continuously during 1931-61. The index of farm output rose
by 72.9 percent of the 1935-39 base during the years 1926-61. (Table XII)
Farm output decreased during the early depression years, but during the
post-depression period[13] it showed a rapidly increasing change. A part
of the increase in the value of output can be attributed to the changes
in the pattern of production. A shift from low profit enterprises to
higher profit ones, gives rise to an increased value of production over
a period of time.

During the last thirty-five years, the pattern of production has
undergone a considerable shift from crops to livestock. Cash income
from crops was reduced from 53.7 percent during 1926-30 to 36.6 percent
during 1955-60, i.e., a decline of about 16.1 percent of total cash
income during this period. (Table XIII).

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[13]The total period 1926-61 can be divided into 3 sub-period:
Pre-depression, which spreads from 1926-29, Depression – which spreads
from 1930-40, and post-depression, which ranges from 1941-61.

TABLE XII

OUTPUT AND INPUT INDEX FOR CANADIAN AGRICULTURE, 1926-61
(1935-39 = 100.)

| Period | Farm output at 1935-39 prices. Mill. $ | Index 1935-39 = 100 | Farm Input at 1935-39 prices Mill. $ | Index 1935-39 = 100 | Productivity Index 1935-39 = 100 |
|--------|------|-------|--------|-------|-------|
| 1926-30 | 788.42 | 105.8 | 1113.79 | 100.3 | 105.5 |
| 1931-35 | 706.71 | 97.6 | 1095.26 | 98.8 | 98.8 |
| 1936-40 | 777.27 | 104.4 | 1113.69 | 100.7 | 103.7 |
| 1941-45 | 1067.08 | 141.9 | 1138.16 | 101.9 | 139.3 |
| 1946-50 | 1074.33 | 144.3 | 1274.11 | 114.9 | 125.5 |
| 1951-55 | 1214.97 | 163.1 | 1283.72 | 115.7 | 141.0 |
| 1956-60 | 1298.41 | 174.3 | 1305.18 | 117.7 | 148.1 |
| 1961 | 1330.71 | 178.7 | 1360.69 | 122.7 | 146.7 |

Source: Estimated on the basis of data obtained from Dominion Bureau of Statistics, Hand Book of Agricultural Statistics, Part II.

Livestock products have occupied a place of preference in the production pattern of farmers. In the long run this shift can be explained by the preference of the consumers, expressed by the relative changes in the prices of these products. The ratio of prices of animal products/crop products has risen as high as 1.49 in 1961, as against only 0.99 during 1926-31. (Table XIV).

On the input side, it was indicated by the table XII that the value of farm inputs in constant dollars has increased less than the value of output. As a result, the ratio of the two indices, expressed

TABLE XIII

CHANGE IN THE PATTERN OF PRODUCTION BY MAJOR CATEGORIES
CANADA, 1926-61 (AGRICULTURE)

| Period | Total cash income from farming including suppl. payment. in current $ | Percentage of the total income contributed by | | |
| | | Crops | Livestock | Other[a] |
| --- | --- | --- | --- | --- |
| 1926-30 | 907.9 | 53.7 | 42.5 | 3.8 |
| 1931-35 | 467.2 | 43.4 | 51.8 | 4.8 |
| 1936-40 | 666.9 | 43.7 | 51.1 | 5.2 |
| 1941-45 | 1401.7 | 39.2 | 54.5 | 6.2 |
| 1946-50 | 2132.2 | 41.7 | 53.2 | 5.1 |
| 1951-55 | 2641.2 | 38.8 | 53.1 | 8.1 |
| 1956-60 | 2756.8 | 36.6 | 56.8 | 4.6 |

[a] Includes the fruit, wool, honey, maple products, fur farming, and forest products.

Source: Calculated from the Dominion Bureau of Statistics, Hand book of agricultural statistics, Farm Income, Part II

as a productivity index, has risen continuously during 1931-61. This measure estimates the productivity in relation to all resources used, and has been regarded as one of the best measures.[14]

In order to obtain a detailed view of inputs in farming, constant (1935-39) dollar expenditures were broken down according to major categories. This data was reduced to input per unit of production, and

[14] E. O. Heady and E. G. Strand, Efficiency within American Agriculture, Journal of farm economics. Volume 37, 1955.

TABLE XIV

RELATIVE MOVEMENT OF PRICES AND PRODUCTION PATTERN IN AGRICULTURE
CANADA, 1926-61.  (Base 1935-39 = 100)

| Period | Price Index no. of | | Ratio of Ani./Fld. prod. prices | Shift in l.s.[a]/ prod. as % of total. |
| | Field Prod. | Animal Prod. | | |
| --- | --- | --- | --- | --- |
| 1926-30 | 137 | 135 | .99 | -- |
| 1931-35 | 72 | 83 | 1.15 | - 9.3 |
| 1936-40 | 100 | 103 | 1.03 | - .7 |
| 1941-45 | 127 | 153 | 1.20 | + 3.4 |
| 1946-50 | 154 | 238 | 1.26 | - 1.3 |
| 1951-55 | 187 | 276 | 1.47 | - .2 |
| 1955-60 | 176 | 263 | 1.49 | + 5.7 |

[a]/ Livestock

Source:  Prices were taken from Canada Year Book, and the last
column was calculated with the help of data presented in table XIII.

taking 1949 as base, it is presented in chart two.[15]  During the 1935-61

period the requirements for hired labor were reduced substantially.  The

index of labor cost per unit of output ranged between 250 per cent to

300 per cent of 1949 level during pre-depression years, decreasing to

only 85 per cent of the 1949 level during the years 1955-60.  (Chart 2.).

Two possible explanations can be suggested for this decrease:  (1)  the

agricultural output index is increasing, and (2)  the relatively higher

earnings in the non-farm alternatives is forcing farm hired laborers

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[15]The detailed table and procedure of working out these series
is presented in appendix VII.

CHART 2

GROWTH OF
SELECTED AGRI. INPUTS
PER UNIT OF PRODUCTION.
CANADA – 1926–61
1949=100

ELECTRICITY

HIRED LABOR

MACHINERY

FERTILIZER

FEED

PERCENTAGE

300

200

100

50

0

1926          1935          1945          1955     1961

YEARS

110
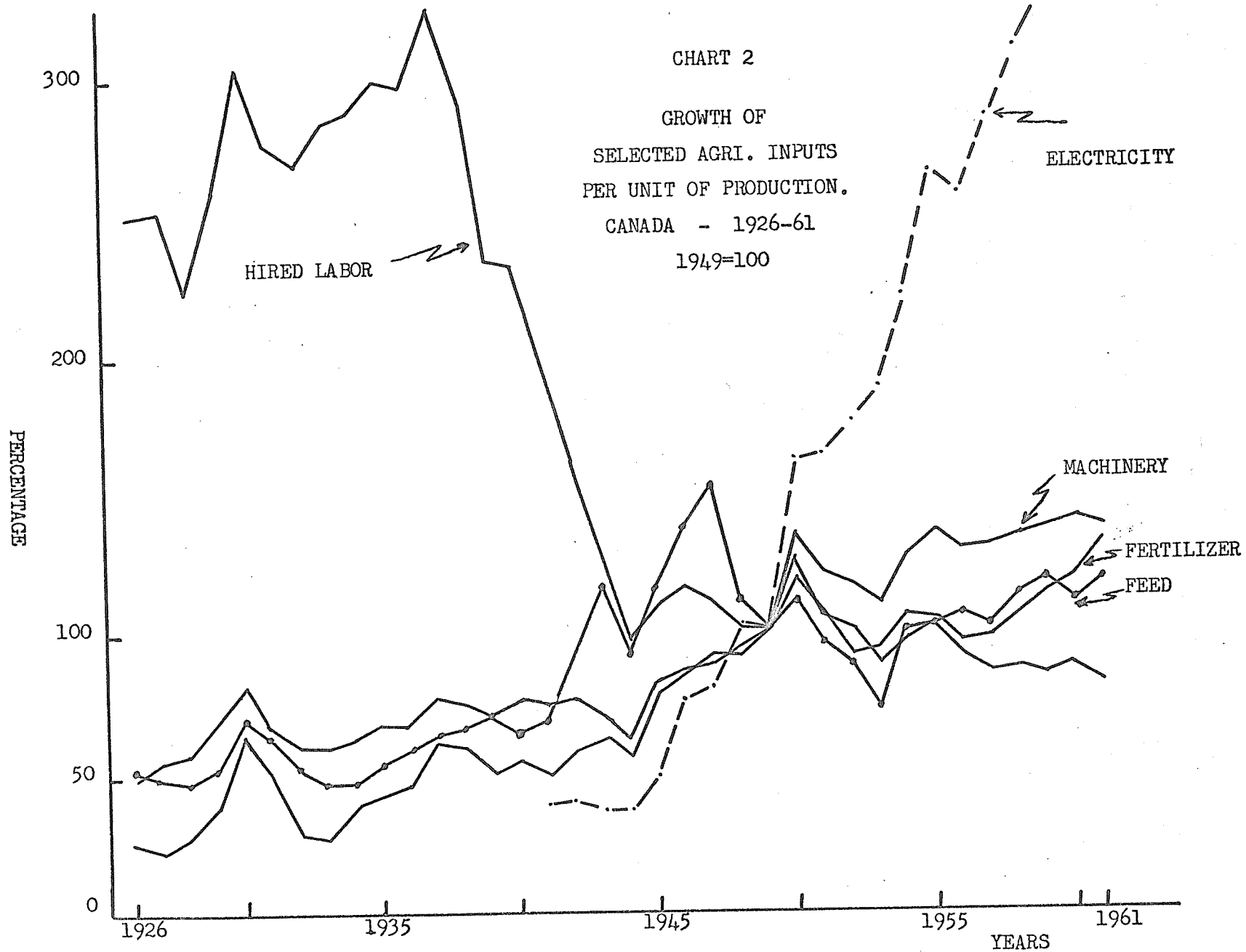
(Based on Data presented in Appendix VII)

to migrate. Increasing mechanisation, as caused by mobility of labor, may also become a cause of reduced labor needs in agriculture.

Chart 2 also indicates that the trends in the use of machinery, fertilizer, and feed and seed have been increasing during this period. (3) Changes in the Farm Income Structure: — The changes in farm prices, resource inputs and production patterns have brought about a change in the pattern of farm incomes during 1926-61. Major characteristics of farm incomes during this time are summarized in Table XV. The table indicates that the ratio of gross income/production expenses has been declining during this period. Especially during the post-depression period the gross incomes have failed to increase in the same proportion as farm expenses. The proportion of incomes in kind of the total gross income has also decreased from 21 per cent of the total gross income during the depression period to 11 per cent in the post-depression period. This decrease may have been caused by the increased specialization in production, amount of cash income, and availability of alternative sources of supply.

To sum up: The technical revolution in agriculture has caused the industry to undergo many economic and structural changes. It has mainly resulted in a state of over-production in agriculture, which accompanied by the nature of farm prices has created an adverse effect on farm income levels. A part of this adverse effect has been counterbalanced by resource mobility and adjustment between various sectors of the economy, as indicated by small number of farms, their increased size and capital investment. If mobility of labor is postulated as mainly a function of relative differences in the labor incomes between farm and non-farm

TABLE XV

FARM INCOME STRUCTURE IN CANADA, 1926-61.

(Average of each year)

| Period. | Total Gross Income. | Prod. Exp. | Net Income | Cash Income as % of Gr. Inco. | Supp. pay. as % of net inco. | Kind inco. as % to GI.[a] | Ratio of GI[a] / pro.[b] exp. |
|---------|------|------|------|------|------|------|------|
| | Mill. $ | | | | | Per Cent | |
| 1926-30 | 1143.9 | 612.0 | 531.9 | 79.3 | - | 20.8 | 1.87 |
| 1931-35 | 622.4 | 459.5 | 162.9 | 75.0 | - | 26.1 | 1.35 |
| 1936-40 | 865.3 | 501.9 | 363.3 | 76.8 | 0.6 | 20.3 | 1.72 |
| 1941-45 | 1592.9 | 728.4 | 864.5 | 86.2 | 3.2 | 14.6 | 2.19 |
| 1946-50 | 2415.4 | 1135.8 | 1279.6 | 87.6 | 1.2 | 12.1 | 2.13 |
| 1951-55 | 3130.8 | 1567.7 | 1563.1 | 84.0 | 0.7 | 10.6 | 1.99 |
| 1956-60 | 3094.3 | 1812.7 | 1281.6 | 88.0 | 2.6 | 10.9 | 1.71 |
| 1961 | 3054.4 | 1979.7 | 1074.7 | 96.6 | 3.3 | 11.1 | 1.54 |

[a] Gross Income

[b] Production Expenses.

Source: Compiled from Dominion Bureau of Statistics, Hand book of Agricultural statistics Part II, Farm Incomes.

sectors; it will follow, as its direct consequence, that farm incomes are not moving in the same direction and with the same rate of growth as non-farm incomes. Before any final conclusion can be made, it is necessary that actual differences in the returns to labor employed in the two sectors should be investigated.

II.  RETURNS TO LABOR IN THE CANADIAN ECONOMY: BY INDUSTRIES.

The investigation into the problem of differences in returns
to resources employed by various industries has been conducted only
for the factor 'labor'.  Unavailability of data on certain aspects of
capital and entrepreneur's incomes restricted the analysis to labor
alone.  In this case the analysis has been presented by dividing the
total labor income into the income of wage earners and that of self
employed workers.  The income of the total labor force has also been
shown along with these two incomes.  The income of the labor force in
non-farm sectors was estimated for all the industrial groups, as pre-
viously mentioned.

A.  Total Labor Income Disparity:  Farm and Non-farm-By Industries: -
The farm income situation in Canada has been stated as one of chronic
depression and uncertainty, no matter what income measure one applies.[16]
The results of the analysis for total labor income are in full agreement
with this statement.  (Table XVI).  Labor income per normalized man
equivalent (NME) on farms during 1926-61 has exhibited a general ten-
dency of being at a low level and having wide fluctuations.[17]  During
the depression years labor income per NME was extremely low, but in the
later period it increased at a rapid rate.  On a per NME basis its peak
of $1274 was attained during 1951-55, but falling again in the late

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[16]M. Brownstone, Agriculture, Edited by M. Oliver, Social
Purposes for Canada, (Toronto:  University of Toronto, 1961.) p.309.

[17]These fluctuations will be discussed in Chapter VII.

TABLE XVI

FARM AND NON-FARM (BY INDUSTRIES) TOTAL LABOR INCOME[a]
PER UNIT OF LABOR IN CURRENT DOLLARS IN CANADA, 1926-61.

| Period | LABOR INCOME PER N.M.E.[b] IN | | | | | | | Labor Income per NMU[d] Farm | Ratio of F/NF | |
| | Farm | NF 1[c] | NF 2 | NF 3 | NF 4 | NF 5 | Non-farm | | % NME | % NMU |
| | ...........................Dollars................. | | | | | | | | | |
| 1926-30 | 243 | 1372 | 1469 | 1686 | 1647 | 1507 | 1549 | 311 | 15.7 | 20.1 |
| 1931-35 | 4 | 883 | 1108 | 1226 | 1352 | 1278 | 1198 | 5 | .3 | — |
| 1936-40 | 174 | 1129 | 1374 | 1194 | 1550 | 1328 | 1347 | 223 | 12.9 | 16.5 |
| 1941-45 | 579 | 2155 | 1871 | 1817 | 2223 | 1966 | 1954 | 741 | 29.6 | 37.9 |
| 1946-50 | 881 | 3182 | 2418 | 2477 | 2943 | 2907 | 2678 | 1128 | 32.9 | 42.1 |
| 1951-55 | 1274 | 4129 | 3592 | 3141 | 4157 | 3639 | 3664 | 1631 | 34.8 | 44.5 |
| 1956-60 | 1123 | 4568 | 4232 | 3861 | 5497 | 4660 | 4488 | 1437 | 25.0 | 32.0 |
| 1961 | 889 | 4747 | 4513 | 3819 | 6186 | 5563 | 4885 | 1138 | 18.2 | 23.3 |

[a] The code of the concept of income used for this computation is $I_e1$. The labor force for non-farm sector has been expressed in terms of NME, but that for the farm sector has been expressed both in terms of NME and MNU. For further details of these concepts see p. 75.

[b] N.M.E., in the discussion and tables is used as an abbreviation for the term Normalized Man Equivalent.

[c] These are the industrial sub-groups in the non-farm sector. The group NF 1 represents resource industries, NF 2—manufacturing industries, NF 3—other secondary industries, NF 4—tertiary industries, excluding services, and NF 5—service industries.

[d] N.M.U. is used as an abbreviation for Normalized Man Unit.

Source: Estimation with the help of data obtained from Dominion Bureau of Statistics.

fifties. Non-farm incomes, on the contrary, have shown a well-defined gradual increasing trend, except during the early depression years.

The wide disparity in farm and non-farm incomes can be indicated by the ratio of farm incomes to non-farm incomes. The striking impression of this ratio is its low size. The ratio in the depression years was the lowest but it has been rising slowly since that period. On a per NME basis, the ratio of farm total labor income to that of non-farm income varied between 12.9 per cent to 34.8 per cent (excluding the early depression years of 1931-35). But when farm labors' income was accounted on a per Normalized man unit (NMU) basis, this ratio varied between 16.5 and 44.5 per cent. However, on the basis of either of these figures the overall conclusion remains unchanged.

An analysis of incomes in the non-farm sector, by industries, reveals that this sector is not composed of homogeneous industries in terms of income levels of total labor. Industries differ not only with respect to level of incomes, but also the rate of change in their levels has been different over the period of time. During the post depression period, service (NF5) and other tertiary (NF4) industries have shown a rapidly increasing tendency in the incomes of total labor. On the other hand, income in the other secondary industries (NF3), has shown a very slow rising trend. If a ratio between income of total labor in farm and that in other secondary industries is computed, then farm incomes rate slightly better than the rating with over all non-farm incomes. (On per NMU basis the ratio ranged from 18.7 per cent in 1931-35 to 51.9 per cent during 1951-55). However, even in this case the conclusion of lower farm incomes remained unchanged.

Income of total labor, as previously indicated, may conceal certain important characteristics. An attempt to reduce the effect of aggregation factors was made by breaking down the total labor force according to the status of the workers, i.e., into wage earners' and self employed workers.

B. Farm and Non-Farm Wage Earnings: - The income of wage earners, i.e., those who sell their labor to the business (corporate or personal) sector, in Canada has indicated almost the same trend as that of total labor income, particularly in the non-farm industries. In these two sectors, the tendency of wage earnings per NME (or NMU) has been that of a rapidly increasing one. However the rate of increase in farm wages was rapid during 1941-50, resulting in a sharp increase in the farm/non-farm wage earning per NME (or NMU) ratio. During the depression period a farm hired worker received much lower incomes than that received by a non-farm wage earner (the ratio of F/NF was around 20 to 22 per cent in terms of NME, and 26 to 28 per cent in terms of NMU, Table XVII). In the post-depression period, the average farm wage earnings per NMU varied between 31.7 per cent and 40.3 per cent of non-farm wage earnings.

In order to have a detailed picture of wage earnings, a cross-classification of the non-farm sector by industries was also made. Even within this sector a wide disparity in the levels of wage earnings existed. Laborers, in the fishing industry, were the lowest paid of this group. Their incomes ranged from $489 per year during 1931-35 to $2777 per year during 1961. (Table XVIII). On the other hand, wage earners in tertiary (NF 4.) industries have earned very high levels of income.

TABLE XVII

ANNUAL AVERAGES OF WAGES AND SALARIES[a] PER UNIT OF LABOR

IN CURRENT DOLLARS IN CANADA, FARM AND NON-FARM, 1926-61

| Period | Wages and salaries per N.M.E.[b] in | | Wages and salaries per NMU[c] Farm | Ratio of F/NF | |
| | Farm | Non-Farm | | % NME | % NMU |
| | .........Dollars................... | | | | |
|---|---|---|---|---|---|
| 1926-30 | — | 1618 | — | — | — |
| 1931-35 | 264 | 1310 | 338 | 20.2 | 25.8 |
| 1936-40 | 327 | 1499 | 418 | 21.8 | 27.9 |
| 1941-45 | 476 | 1922 | 609 | 24.8 | 31.7 |
| 1946-50 | 806 | 2691 | 1032 | 29.9 | 38.3 |
| 1951-55 | 1185 | 3764 | 1517 | 31.5 | 40.3 |
| 1956-60 | 1357 | 4554 | 1737 | 29.8 | 38.1 |
| 1961 | 1433 | 5008 | 1834 | 28.6 | 36.6 |

[a] The concept used for income measurement was $1_e2$. For labor force, wage earners only included the persons who were hired for remuneration. The terms NME and NMU for non-farm sector are identical, as there is no hours-of-work adjustment.

[b] Normalized Man Equivalent.

[c] Normalized Man Unit.

Source: Estimation with the help of data obtained from Dominion Bureau of Statistics.

Their incomes ranged between $1570 per year during 1931-35 to $6592 in 1961.

The most striking conclusion which can be drawn from these tables may be stated in this manner: Farm hired laborers were not paid as well as non-farm wage earners. But, at the same time, workers engaged in different industries of the non-farm sector were also

TABLE XVIII

ANNUAL AVERAGES OF WAGES AND SALARIES[a] OF WORKERS PER NME

BY INDUSTRIES IN CANADA, 1926-61

| Period | Fishing | NF 1. | NF 2. | NF 3. | NF 4. | NF 5. |
|--------|---------|-------|-------|-------|-------|-------|
|        |         | Dollars |     |       |       |       |
| 1926-30 | 1226 | 1725 | 1504 | 1832 | 1661 | 1514 |
| 1931-35 | 489 | 1079 | 1120 | 1341 | 1570 | 1447 |
| 1936-40 | 514 | 1459 | 1438 | 1308 | 1836 | 1546 |
| 1941-45 | 1358 | 2354 | 1857 | 1762 | 2187 | 1872 |
| 1946-50 | 2225 | 4003 | 2414 | 2464 | 2996 | 2942 |
| 1951-55 | 2278 | 5147 | 3659 | 3097 | 4307 | 3822 |
| 1956-60 | 2399 | 5808 | 4306 | 3834 | 5721 | 4687 |
| 1961 | 2777 | 6385 | 4593 | 3804 | 6592 | 5640 |

[a] The concept used for income measurement was $I_e2$. For labor force wage earners only included the persons who were hired for remuneration. The terms NME and NMU for non-farm sector are identical, as there is no hours of work adjustment.

Source: Estimation with the help of data obtained from Dominion Bureau of Statistics.

remunerated at different levels.

Such a disparity of farm and non-farm wage earnings can be explained on the basis of responsiveness of the farm labor force to incomes in alternate non-farm employments. Theoretically, the supply of labor to agriculture is a function of the wage in agriculture, the wage for comparable labor in non-agriculture, the level of unemployment, and the growth of the farm labor force due to an excess of additions (individuals living on farms reaching working age) over withdrawals

(from death or retirement)[18]. If labor in the agricultural sector is very conscious of the wages in alternative non-agricultural employment, ceteris paribus, the supply of agricultural workers will be reduced; resulting in an increase in agricultural wages.

Inter-industrial differences in wages may also be explained through differences between the demand for and supply of workers in an industry, the bargaining power of workers, the technical skill required, and the type of risks involved in certain employments. One of the main reasons for such a rapid rise in the level of wages in the non-farm industries may be the increase in labor unions. The membership of unions increased by 365 per cent during 1931-61.[19] The role of labor unions in enhancing the wage level has been accepted by many economists. The OEEC clearly indicated five reasons which made it believe that wage negotiations were the dominent factors in the upward movement of wages: (1) wages increased when there was no real shortage of labor, (2) wages have increased in an industry when there has been unemployment in the industry, (3) in some countries substantial unemployment was prevalent througnout the period and there was never any real strain on the labor market due to demand (4) often wage increase was out of proportion with what management would have been prepared to pay to obtain additional

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[18]D. Gale Johnson, The Nature of the Supply Function for Agricultural Products, The American Economic Review. Vol. XL, No. 4, Sept. 1950.

[19]Dominion Bureau of Statistics, Canada Year Book, 1962. For further details on the empirical evidence for some of these factors, see Appendix (VI).

workers, and (5) movement of wages has been continuously upward.[20]

Though, this analysis has not estimated the effect of these factors on the wage levels of farm and non-farm hired laborers, it may be regarded as an important facet of general equilibrium problems. The extent these factors affect the adjustment of farm labor may be suggested as an area needing further investigations.

C. Income of the Self Employed Workers: - The second sub-category of the total labor force is that of self-employed workers. This group includes the farm proprietors in the farm sector and business proprietors and professional workers in the non-farm sector. When the incomes of these workers, exclusively as a reward for labor, were compared in the two sectors, the overall income of farm operators was seen to have been lower than that of non-farm self-employed workers. During 1941-61, the highest income was $1353 per NME ($1732 per NMU). These incomes rose between 1941-55, but in the following period fell. (Table XIX). Non-farm incomes on the other hand, indicate two distinct features. First, they have been increasing, almost continuously during this period, and second, the level of incomes has been higher than that of farms operators. The non-farm income was lowest during 1941-45 ($2212) and thereafter increased to $3804 in 1956-60. The ratio of the two incomes per NME was 29 per cent during 1941-45, rose to about 46 per cent in 1951-55, and fell back to 18 per cent in the latter period. (On NMU

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[20] W. Fellner et. al., Organization for European Economic Cooperation - Rising Prices, (Paris, 1961). p. 48. However, certain authors have also shown opposite views on this issue. But most of the economists agree with these findings.

TABLE XIX

INCOMES[b] OF SELF-EMPLOYED WORKERS BY INDUSTRY, CANADA, 1941-61[a]

(Average of the individual years)

| Period | Self-employed workers' income per NME in non-farm | | | | | | | SE[c] workers Income per NMU in farm | Ratio of F/NF | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Farm | NF 1 | NF 2 | NF 3 | NF 4 | NF 5 | non-farm | | % NME | % NMU |
| | ...............Dollars/NME................. | | | | | | | | | |
| 1941-45 | 635 | 1433 | 2363 | 2008 | 2251 | 2836 | 2212 | 813 | 28.7 | 36.7 |
| 1946-50 | 904 | 1249 | 2484 | 2313 | 2692 | 2909 | 2485 | 1157 | 36.4 | 46.6 |
| 1951-55 | 1353 | 1333 | 2562 | 2772 | 3327 | 2705 | 2909 | 1732 | 46.5 | 59.5 |
| 1956-60 | 1046 | 1473 | 3955 | 3441 | 4086 | 3758 | 3804 | 1339 | 27.5 | 35.2 |
| 1961 | 674 | 1576 | 5560 | 3181 | 3953 | 3805 | 3791 | 863 | 17.8 | 22.8 |

[a] Due to unavailability of data on number of farm operators during 1926-40, this period has been excluded.

[b] The income concept used in this case was $I_e3$. Farm operators' incomes were calculated both on per NME and NMU basis. For the non-farm sector, NME and NMU are identical.

[c] SE is an abbreviation for Self-employed Workers.

Source: Estimated on the basis of data obtained from the National Accounts Section and Agricultural Division, Dominion Bureau of Statistics.

basis the ratio ranged in between 22.8 and 59.5 per cent).

An industrial cross-classification of non-farm sector's income indicated that self-employed workers were highly paid in the service (NF 5) and tertiary (NF 4) industries. The high incomes in the service industries may be due to the inclusion of professional workers in this industry. As the incomes of these workers were higher than that of non-professionals, it raised the overall average of the industry. Comparatively, self-employed workers in resource (NF 1) industries were the most poorly paid. The average income in these industries ranged between $1249 and $1576 per

NME; which in a few years were even lower than those earned by farm
operators.

If the incomes of wage earners and self-employed workers are
compared simultaneously, an interesting feature of income according to
type of workers will be found. This feature is that wage earnings in
many industries were higher than the incomes of self-employed workers.
Such was the case for the non-farm sector as a whole. In 1956-60 the
average difference between these two incomes was $750 per NME.[21] The
validity of this difference may be supported on the basis of change in
the types of workers during 1941-61. During this period the proportion
of self-employed workers to total labor force decreased by 3.3 per cent,
whereas the percentage of wage earners to total labor increased by
5.3 per cent during the same period. (Table XX).

Various explanations can be suggested for the existence of the
higher incomes for wage earners relative to that of self-employed workers.
Perhaps the best explanation lies in the difference in the nature of the
two incomes. Wage earners have a fixed salary, determined much in
advance of the start of production whereas the income of the self-employed
workers is a residual sum. This residual to the owners is usually a com-
bination of the earnings of resources owned by the operator including the
labor contributed by family members. The lower incomes of self-employed
workers may also be an outcome of risk and uncertainty in the business,

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[21]The non-farm wage earnings per NME during 1956-60 was $4554
(from table XVII) and average income of self-employed persons during the
same period was $3804 per NME. (Table XIX).

TABLE XX

DISTRIBUTION OF THE TOTAL LABOR FORCE IN DIFFERENT INDUSTRIES BY

TYPE OF WORKERS IN CANADA, 1941-61
(As percentage of the total labor force)

| Industry | Employer and own account workers. | | Wage earners | | Unpaid family workers. | |
|---|---|---|---|---|---|---|
| | 1961 | △ in 1941-61 | 1961 | △ in 1941-61 | 1961 | △ in 1941-61 |
| Agriculture | 62.2 | + 2.6 | 18.2 | + 1.6 | 19.6 | - 4.2 |
| Resource | 12.5 | - 9.5 | 87.0 | + 10.2 | .5 | - .7 |
| Manufacturing | 3.0 | - 3.3 | 96.8 | + 3.5 | .2 | - .2 |
| Transport | 10.3 | - .2 | 89.5 | + .3 | .2 | - .1 |
| Trade | 14.7 | - 8.1 | 83.8 | + 8.0 | 1.5 | + .1 |
| Services | 9.6 | - 3.5 | 89.7 | + 11.1 | .7 | - 7.6 |
| Non-agri. | 9.3 | - 3.3 | 90.0 | + 5.3 | .7 | - 2.0 |

Source: Estimated on the basis of data obtained from the 1941 and 1961 census, Volume III.

which affect the residual sum left for the entrepreneur. The large number of small sized business units included under unincorporated non-farm business may also be suggested as another explanation for the relatively lower incomes of self-employed workers.

Thus, on the basis of the above analysis the main conclusion drawn is that in the Canadian economy, returns to farm labor have not been at par with that of non-farm labor. The disparity between farm and non-farm labor income differs in case of wage earners and self employed workers as shown in Chart 3.[22] However, any such conclusion may be

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[22] The ratio of farm and non-farm incomes in different years, according to type of workers is presented in Appendix VIII.

CHART 3

FARM AND NON-FARM LABOR INCOME RATIO,
ACCORDING TO TYPE OF WORKERS, CANADA, 1926-61.

SELF-EMPLOYED WORKERS' INCOME

TOTAL WORKERS' INCOME

WAGE EARNERS' INCOME

RATIO F:NF PER CENT

YEARS
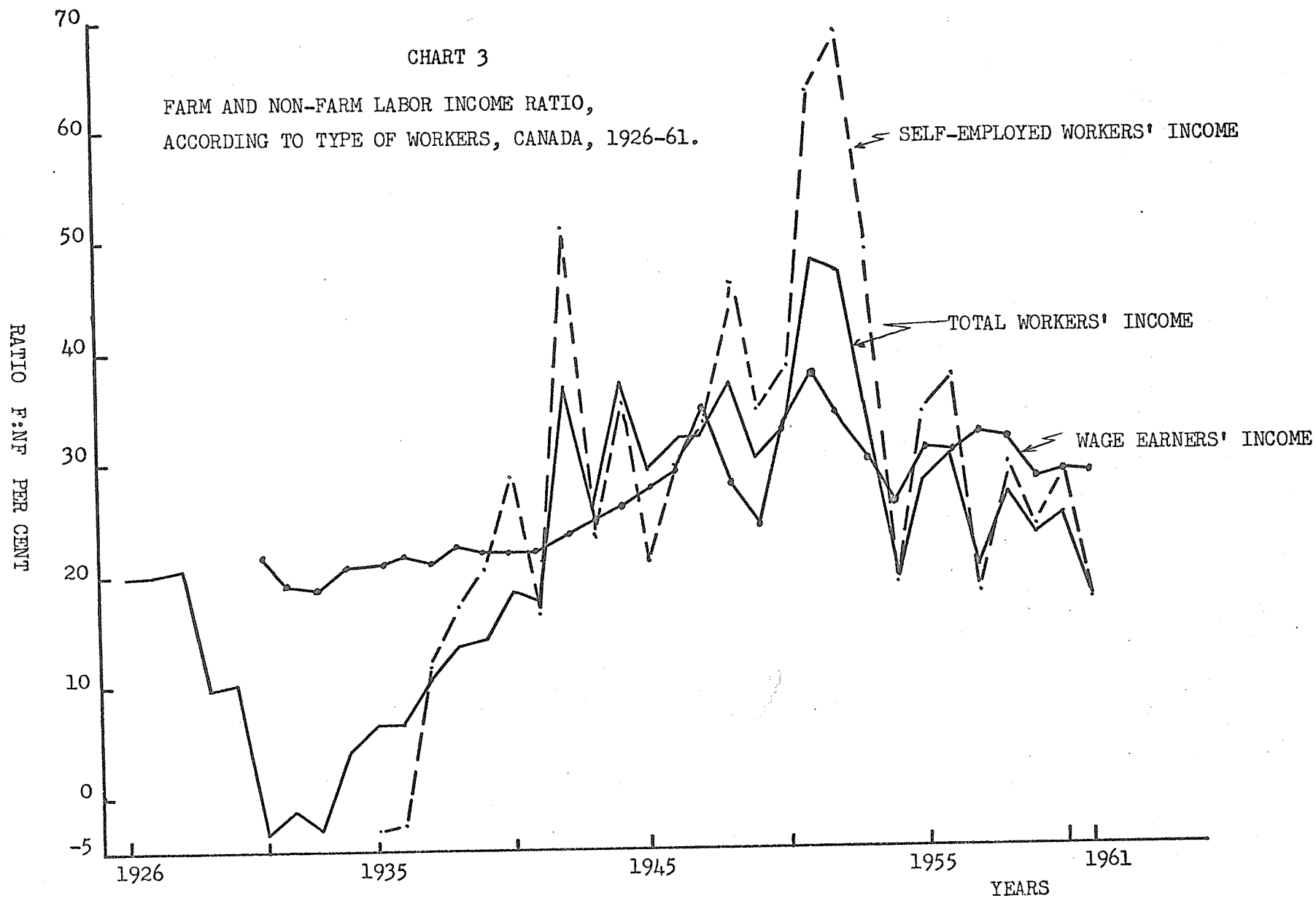
(Based on Data presented in Appendix VIII)

slightly erroneous, mainly because of the fallacies of the national

aggregates. In order to be more specific and in order to develop a

suitable base for public policies some detailed analysis of income

levels and the pattern of income disparity must be undertaken. In the

following section, the disparity between returns to farm and non-farm

labor is analyzed on a regional basis.

III. DISPARITY BETWEEN RETURN TO FARM AND NON-FARM LABOR: BY REGIONS:

A. Regional Setting of the Canadian Economy: - Canada has traditionally

been divided into five regions: the Maritimes,[23] Quebec, Ontario, the

Prairies and British Columbia. The Maritimes include the provinces of

Prince Edward Island, Nova Scotia and New Brunswick. The Prairie region

includes the provinces of Manitoba, Saskatchewan and Alberta.

These five regions differ considerably with respect to the size

and relative importance of farm and non-farm sectors. In Table XXI,

the industrial distribution of the total labor force in the different

provinces is presented. In only the Prairies, does the table reveal

that the agricultural industry absorbs a major part of the total labor

force. In Eastern Canada, manufacturing seems to be the main industry.

In 1961, manufacturing absorbed 26.3 per cent and 26.8 per cent of the

total labor force in Quebec and Ontario respectively. The next largest

user of labor in Quebec was service industry with 25.4 per cent of total

labor.

With regard to the contribution of different regions to the total

agricultural industry, the Prairie region may be referred to as the most

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[23]Due to unavailability of Data for Newfoundland, the term
Atlantic provinces could not be used.

TABLE XXI

INDUSTRIAL DISTRIBUTION OF LABOR FORCE IN DIFFERENT REGIONS, 1961
(As percentage of the total labor force.)

| Industry | REGIONS | | | | |
| | Maritimes | Quebec | Ontario | Prairies | Br. Col. |
| --- | --- | --- | --- | --- | --- |
| Agriculture | 7.5 | 7.4 | 7.0 | 24.3 | 4.0 |
| Resource | 8.7 | 4.0 | 2.6 | 3.0 | 5.8 |
| Manufacturing | 14.6 | 26.3 | 26.8 | 8.9 | 19.5 |
| Transport | 17.5 | 16.2 | 14.5 | 16.6 | 16.6 |
| Trade | 20.0 | 17.5 | 19.5 | 18.7 | 21.1 |
| Services | 31.6 | 25.4 | 11.2 | 25.8 | 29.4 |
| Unstated | .1 | 3.2 | 18.4 | 2.7 | 3.6 |

Source: Compiled from 1961 Census, Part III.

important contributor. In terms of total number of farms, total agricultural labor force, and total cash income, the Prairie region accounts for 44.1 per cent, 44.3 per cent and 45.5 per cent of the total, respectively. (Table XXII). In terms of the same characteristics the other regions rank in the following order: Ontario, Quebec, the Maritimes and British Columbia.

Thus, with respect to the importance of farm and non-farm sectors, the provinces do not share the same proportion. The relative differences in the importance of farm sectors, may be postulated to have a direct relationship with the agricultural prosperity in different regions. In order to test this relationship, the regional pattern of farm and non-farm incomes is analyzed.

TABLE XXII

REGIONAL STRUCTURE OF CANADIAN AGRICULTURE

| Region | % of total farms in 1961.[a] | % of total agri. lab. in 1961.[a] | % of total cash inco. in 1956-60. | % of total C.I. from Crop. L.S. | | △ in L.S. inc. during 1926-30 to 1955-60. |
|---|---|---|---|---|---|---|
| Maritimes | 6.6 | 5.2 | 4.4 | 24.4 | 65.2 | + 9.8 |
| Quebec | 19.9 | 20.5 | 14.9 | 9.9 | 83.6 | + 16.2 |
| Ontario | 25.3 | 26.4 | 30.5 | 25.7 | 73.4 | - 1.6 |
| Prairies | 44.1 | 44.3 | 45.5 | 56.6 | 43.2 | + 22.3 |
| Bri. Col. | 4.1 | 3.6 | 4.4 | 6.9 | 84.8 | + 28.8 |

[a] The percentage has been calculated by taking the Canada as consisting of the provinces under study.

Source: Total farms no. was taken from I. F. Furniss and S. W. Garland, op. cit. p. 3.
Labor force was calculated from the 1961 census and the income statistics was taken from the Hand book of agricultural statistics, Part II. Dominion Bureau of Statistics.

B. Farm Income Situation:[24]_ The analysis of farm incomes in the regional aspect, was conducted in the same way as for industrial incomes, that is by dividing the total incomes into wage earnings and self-employed workers' incomes.

The incomes of the total labor force in agriculture are presented in Table XXIII. The most important feature of this table is that it shows very wide variations in income levels of various

[24]
Farm incomes in this section have been expressed in terms of per NME basis, and not in terms of both NME & NMU. However, while analyzing disparity of farm and non-farm incomes, both sets of data were considered.

TABLE XXIII

FARM INCOMES-REGIONAL DISTRIBUTION PER NME OF TOTAL LABOR DURING 1926-61

AND THEIR INDEX (CANADA= 100.)

| Period. | Mari. | REGIONS. Que. | Ont. | Prai. | Br. Col. |
|---------|-------|---------------|------|-------|----------|
| | | DOLLARS | | | |
| 1926-30 | 172 | 130 | 290 | 333 | 282 |
| 1931-35 | 73 | 12 | 61 | - 91 | 112 |
| 1936-40 | 141 | 139 | 203 | 178 | 252 |
| 1941-45 | 325 | 402 | 568 | 584 | 640 |
| 1946-50 | 394 | 587 | 865 | 1069 | 845 |
| 1951-55 | 469 | 891 | 1231 | 1653 | 1117 |
| 1956-60 | 498 | 835 | 1278 | 1181 | 1079 |
| 1961 | 379 | 899 | 1458 | 783 | 1530 |

Index Canada = 100
Per cent.

| Period. | Mari. | Que. | Ont. | Prai. | Br. Col. |
|---------|-------|------|------|-------|----------|
| 1926-30 | 70.8 | 53.5 | 119.3 | 137.0 | 116.0 |
| 1931-35 | a/ | a/ | a/ | a/ | a/ |
| 1936-40 | 81.0 | 79.8 | 116.7 | 102.2 | 144.8 |
| 1941-45 | 56.1 | 69.4 | 98.1 | 100.9 | 110.5 |
| 1946-50 | 44.7 | 66.6 | 98.2 | 121.3 | 95.9 |
| 1951-55 | 36.8 | 69.9 | 96.6 | 129.7 | 87.7 |
| 1956-60 | 44.3 | 74.3 | 113.8 | 105.1 | 96.1 |
| 1961 | 42.6 | 101.1 | 164.0 | 88.1 | 172.1 |

a/ Because of very small average income for Canada the percentages have not been calculated.

Source: Estimated on the basis of data obtained from Agricultural Division, Dominion Bureau of Statistics.

regions. The overall regional pattern of these incomes can be described as:
The Prairie region in almost every year has been the leading one (that is,
having the highest income per NME) followed by Ontario, British Columbia,
Quebec, and the Maritime region. As compared to the average Canadian farm
income for total labor, the Prairie region had an income level of 101 per
cent to 137 per cent. Ontario and British Columbia were, for many periods,
almost at a par while the Maritime region and Quebec were considerably
below. During the period 1951-55, farm total labor on an average earned
$1653 per NME in the Prairies, followed by $1231 in Ontario, $1117 in
British Columbia, $891 in Quebec, and only $469 in the Maritimes.

Income of hired labor on farms closely parallels the total labor
income. However, the regional pattern of farm wage earnings has two
additional characteristics: (a) the regional differences in the level of
incomes are of lesser magnitude in relation to incomes of total workers.
(Table XXIV). (b) the pattern of increases in incomes through time has
been uniform in all the regions. At the same time, the regional pattern
of wage earnings is almost the same as that of total labor income.
Incomes in the Maritime regions have been the lowest, particularly during
the post-depression period, followed by incomes in Quebec, the Prairie
provinces, British Columbia, and Ontario, in an ascending order.

TABLE XXIV

FARM WAGE EARNERS' INCOME PER NME, CANADA BY PROVINCES, 1931-61[a]

| | | REGIONS | | | |
|---|---|---|---|---|---|
| Period. | Mari. | Que. | Ont. | Prai. | Br. Col. |
| | | DOLLARS | | | |
| 1931-35 | 142 | 242 | 304 | 263 | 244 |
| 1936-40 | 228 | 292 | 379 | 328 | 344 |
| 1941-45 | 400 | 397 | 497 | 519 | 468 |
| 1946-50 | 631 | 589 | 896 | 923 | 864 |
| 1951-55 | 854 | 882 | 1339 | 1231 | 1321 |
| 1956-60 | 1146 | 1142 | 1582 | 1140 | 1499 |
| 1961 | 1162 | 1154 | 1500 | 1116 | 1542 |

[a] The years 1926-30 were excluded because the data for labor force by provinces was not available.

Source: Estimated on the basis of data obtained from Agricultural and Labor Divisions, Dominion Bureau of Statistics.

A partial explanation for the regional uniformity in wage earnings, through time, may be given as follows: Wage earnings in the farm sector are usually influenced by non-farm incomes. If the non-farm incomes in a particular region are higher, there will be a higher rate of hired labor migration, and very soon it will adjust the agricultural

wages to a higher level. The same argument will apply to the adjustment of wage level between regions. If regions differ substantially in wage earnings levels, labor mobility to the attractive regions will tend to equalize the wage level in both the regions.

Larger regional disparities in income of total workers and relative similarity of wages indicate that the income of the farm operators will have a higher regional disparity. The average income of the farm operators ranges widely through time as well as among regions. (Table XXV). The incomes of the operators was highest in the Prairie region. Along with being higher, incomes in this region have also been very low during the depression. The incomes in this region varied between $ -406[25] and $2280, during 1931-61. A chronic lower level of incomes has been observed in the case of the Maritime provinces, which did not suffer comparatively as much during the depression period. Incomes in this region dropped to $ -21 in 1931-35 but rose only up to $483 during 1955-60. Quebec, British Columbia, and Ontario can be arranged in an ascending order between the Maritimes and the Prairie provinces.

To sum up: farm incomes in their regional pattern vary considerably. This variation is not only regional in nature, but also varies

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[25]Negative incomes during depression periods were obtained because of very low gross incomes.

TABLE XXV

FARM OPERATORS' INCOME PER NME BY REGIONS, 1931-61.

| Period. | REGIONS. | | | | |
| | Mari. | Que. | Ont. | Prai. | Br. Col. |
| | Dollars. | | | | |
| 1931-35 | -21 | - 104 | - 85 | -406 | 28 |
| 1936-40 | 64 | 58 | 141 | 148 | 282 |
| 1941-45 | 198 | 262 | 597 | 866 | 737 |
| 1946-50 | 245 | 363 | 815 | 1429 | 631 |
| 1951-55 | 374 | 648 | 1077 | 2280 | 626 |
| 1956-60 | 483 | 516 | 920 | 1441 | 518 |
| 1961 | 231 | 579 | 929 | 1206 | 548 |

Source: Estimated on the basis of data obtained from Handbook of Agricultural Statistics, Part II, Dominion Bureau of Statistics.

through time. Moreover, this variation is more prominent in the case of farm operators' incomes than in the case of wage earnings.

C. Non-Farm Income Situation: - An analysis identical to that made for farm incomes was employed in the case of analyzing non-farm incomes. The regional pattern of incomes of farm and non-farm sectors, except for their differences in levels, may be characterized as fairly similar. Here again, the Maritimes region received lower incomes per NME, than those of other regions. (Table XXVI). Income in this region varied from $903 during 1931-35 to $3372 during 1955-60. The highest income among all the regions for most of the years was received by labor in Ontario, and the incomes of workers in the Prairie region ran close to it.

TABLE XXVI

REGIONAL NON-FARM TOTAL LABOR INCOME PER NME, 1926-61

AND ITS INDEX (CANADA = 100.)

| Period. | Mari. | REGIONS. Que. | Ont. | Prai. | Br. Col. |
|---------|-------|-------|------|-------|----------|
|         |       | Dollars |    |       |          |
| 1926-30 | 1248 | 1520 | 1641 | 1622 | 1459 |
| 1931-35 | 903  | 1154 | 1235 | 1172 | 1056 |
| 1936-40 | 1076 | 1299 | 1426 | 1291 | 1272 |
| 1941-45 | 1577 | 1875 | 2080 | 1949 | 2009 |
| 1946-50 | 2225 | 2568 | 2785 | 2713 | 2643 |
| 1951-55 | 2788 | 3370 | 3814 | 3814 | 3907 |
| 1956-60 | 3372 | 4148 | 4572 | 4657 | 4843 |
| 1961    | 3040 | 4705 | 5004 | 5105 | 5333 |

Index, Canada = 100.

| Period. | Mari. | Que. | Ont. | Prai. | Br. Col. |
|---------|-------|------|------|-------|----------|
| 1926-30 | 80.5 | 98.1 | 105.9 | 104.7 | 94.1 |
| 1931-35 | 75.3 | 96.3 | 103.0 | 97.8  | 88.1 |
| 1936-40 | 79.9 | 96.4 | 105.8 | 95.8  | 94.4 |
| 1941-45 | 80.7 | 95.9 | 106.4 | 99.7  | 102.8 |
| 1946-50 | 83.1 | 95.8 | 103.9 | 101.3 | 98.7 |
| 1951-55 | 76.0 | 91.9 | 104.0 | 104.0 | 106.6 |
| 1956-60 | 75.1 | 92.4 | 101.8 | 103.7 | 107.9 |
| 1961    | 62.2 | 96.3 | 102.4 | 104.5 | 109.1 |

Source: Estimated on the basis of data obtained from National Accounts section, Dominion Bureau of Statistics.

When the incomes of the non-farm sector were analyzed for different types of workers, a slightly different regional pattern was observed for wage earnings and for self-employed workers' incomes. Furthermore, in every region, particularly during the post-depression period, wage earnings tended to be higher than the self-employed workers' income on an equivalent labor unit basis.

The incomes of non-farm wage earners were highest in British Columbia. The average income per NME in this region varied between $1013 and $5497 during 1926-61. The Maritime region was again the lowest in terms of wage earnings, where the range was between $1009 and $3459 per NME. (Table XXVII.)

In the case of self employed workers' incomes, the upper and lower limits were provided by the Prairies and British Columbia (the Prairies in the late post-depression period, and British Columbia during the depression and early post-depression years) and the Maritime regions respectively. (Table XXVII).

Thus the incomes of the non-farm sector are fairly high, ranging between $903 and $5333 per NME for total labor. They also tended to gradually increase over time and showed a wide range among regions. The regional pattern exhibited by non-farm incomes is fairly similar to that of farm incomes. The Maritimes, Quebec, the Prairies, Ontario and British Columbia could be arranged in an ascending sequence with respect to income levels.

D. Relationship of Regional Farm and Non-Farm Incomes: - The similarity in the regional distribution of incomes for the two sectors indicates

TABLE XXVII

REGIONAL INCOME OF NON-FARM SECTOR PER NME OF WAGE EARNERS

AND SELF-EMPLOYED WORKERS IN CANADA 1926-61

| Period. | REGIONS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Maritimes | | Quebec | | Ontario | | Prairie | | British Columbia | |
| | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| | | | Dollars | | | | | | | |
| 1926-30 | 999 | 1653 | 1376 | 1567 | 1502 | 1681 | 1582 | 1652 | 1399 | 1443 |
| 1931-35 | 522 | 1009 | 689 | 1259 | 720 | 1338 | 700 | 1311 | 628 | 1013 |
| 1936-40 | 576 | 1242 | 735 | 1447 | 812 | 1573 | 742 | 1493 | 757 | 1564 |
| 1941-45 | 1978 | 1544 | 2083 | 1857 | 2347 | 2058 | 2206 | 1912 | 2329 | 1977 |
| 1946-50 | 2296 | 2212 | 2100 | 2639 | 2753 | 2790 | 2499 | 2715 | 2819 | 2687 |
| 1951-55 | 2355 | 2865 | 2450 | 3482 | 3078 | 3895 | 3165 | 3928 | 3255 | 4083 |
| 1956-60 | 2841 | 3459 | 3245 | 4245 | 3958 | 4630 | 4402 | 4693 | 4281 | 4936 |
| 1961 | 2876 | 3065 | 3319 | 4869 | 3849 | 5121 | 4635 | 5178 | 4068 | 5497 |

1. Income of Self Employed workers.

2. Income of wage earners.

Source: Same as Table XXVI.

they are related. Two measures to test this similarity were used. The first measure was to calculate the correlation coefficient between the incomes of the two sectors, and the second was to compare average ratios of farm and non-farm incomes in various regions.

The correlation coefficient between these incomes was estimated by fitting a regression function. Theoretically, non-farm labor income may be postulated to vary independently, and thereby affecting the level of farm incomes, by providing proper incentives to farm workers to improve their earnings. The correlation coefficient between the total labor incomes of these regions during 1941 and 1961 came to be 0.728. This was significant at the one per cent level. The functional relationship obtained for this period can be expressed as:

$$\hat{Y} = 49 + 0.2397** \, X$$
$$(0.050)$$
$$S = 285.6 \qquad r^2 = 0.5299** \quad 26$$

where    X = Average non-farm total labor income per NME and

           Y = Average farm total labor income per NME.

The analysis clearly indicates that the level of incomes on farms is related to the income level of its counterpart. Thus, in the long run, incomes of farm people have tended to move much in the same direction as incomes of non-farm people, although at a lower level.

The analysis of the ratio of farm to non-farm incomes in various regions provides an indication of the real income relationship between

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     26
      ** Means that the coefficients are significant at one per cent level.

the two sectors. The ratios have been calculated for incomes per NME as well as for those per NMU. Basically the regional pattern of income ratios has been the same for incomes per NME and per NMU. The discussion in the following paragraph is presented for the incomes per NMU for different types of workers.

The ratio of farm/non-farm total labor income per NMU, with the exception of the Prairie, has been very close for different regions. This regional pattern is consistent with that exhibited by farm incomes per NME. On an average, during the period 1941-61, a worker in the Maritime region received a very low income, compared to a worker in the Prairie Provinces. (Table XXVIII). In particular from 1946 to 1955, the Prairie farmers were much better off relative to the workers in the corresponding non-farm sector. In the case of self-employed workers in the Prairies, the ratio of farm/non farm incomes during this period was as high as 92.2 per cent.

Two more conclusions can be drawn from the data presented in Table XXVIII. First, the wage earnings in all the regions have moved in the same direction, and a very close relation between the wages per NMU of farm and non-farm sectors exists. Secondly, the incomes of self employed workers indicate a wide disparity in the income ratios for different regions.

Having described the pattern of farm and non-farm incomes in the Canadian economy, its implications should be discussed. The main controversial issue is why such a differential of incomes exists in a developing economy? At least two types of factors, which may create

## TABLE XXVIII

### REGIONAL RATIOS OF FARM AND NON-FARM INCOMES, BY TYPE OF WORKERS, IN CANADA, 1941-61

(F.NF%)

| Period | Per NME | | | | | PER NMU | | | | |
|--------|------|------|------|-------|------|------|------|------|-------|------|
| | Mar. | Que. | Ont. | Prai. | B.C. | Mar. | Que. | Ont. | Prai. | B.C. |
| | | | | | Total Workers | | | | | |
| 1941-45 | 20.6 | 21.4 | 27.3 | 29.9 | 31.8 | 26.4 | 27.4 | 34.9 | 38.3 | 40.7 |
| 1946-50 | 17.7 | 22.8 | 31.0 | 39.4 | 31.9 | 22.6 | 29.2 | 39.7 | 50.4 | 40.8 |
| 1951-55 | 16.8 | 26.4 | 32.2 | 43.3 | 28.6 | 21.5 | 33.8 | 41.2 | 55.4 | 36.6 |
| 1956-60 | 14.7 | 20.1 | 27.9 | 25.3 | 22.2 | 18.8 | 25.7 | 35.7 | 32.4 | 28.4 |
| 1961 | 9.2 | 19.1 | 29.1 | 15.3 | 28.7 | 11.8 | 24.4 | 37.2 | 19.6 | 36.7 |
| | | | | | Wage Earners | | | | | |
| 1941-45 | 25.9 | 20.8 | 24.1 | 27.1 | 23.6 | 33.1 | 26.6 | 30.8 | 34.7 | 30.2 |
| 1946-50 | 28.5 | 22.3 | 32.1 | 33.9 | 32.1 | 36.5 | 28.5 | 41.1 | 43.4 | 41.1 |
| 1951-55 | 29.8 | 25.3 | 34.4 | 31.3 | 32.3 | 38.1 | 32.4 | 44.0 | 40.1 | 41.3 |
| 1956-60 | 33.1 | 26.9 | 34.2 | 24.3 | 30.3 | 42.4 | 34.4 | 43.8 | 31.1 | 38.8 |
| 1961 | 37.9 | 23.7 | 29.3 | 21.6 | 28.0 | 48.5 | 30.3 | 37.5 | 27.6 | 35.8 |
| | | | | | Self-Employed Workers | | | | | |
| 1941-45 | 10.0 | 12.6 | 25.9 | 39.2 | 27.0 | 12.8 | 16.1 | 32.5 | 50.1 | 34.6 |
| 1946-50 | 10.7 | 17.2 | 29.6 | 57.1 | 22.2 | 13.7 | 22.0 | 37.9 | 73.1 | 28.4 |
| 1951-55 | 15.9 | 26.4 | 34.9 | 72.0 | 19.2 | 20.3 | 33.8 | 44.7 | 92.2 | 24.6 |
| 1956-60 | 17.0 | 15.9 | 23.2 | 32.7 | 12.1 | 21.8 | 20.3 | 29.7 | 41.8 | 15.5 |
| 1961 | 8.0 | 17.4 | 24.1 | 26.0 | 13.5 | 10.2 | 22.3 | 30.8 | 33.6 | 17.3 |

Source: Estimated with the help of data presented in Tables XXIII, XXIV, XXV, XXVI and XXVII.

a state of lower farm incomes, can be described: one group includes

those which are responsible for the generation of lower level of incomes

in the agricultural sector; and the other includes those which impede

factor price equalization between different sectors. The first category

includes differences in technical ability, lack of education, and

imperfect knowledge about alternative employment. Before a valid base

for public policies related to resource allocation may be developed,

it seems necessary that a study of these factors along with their effect

on the income disparity between farm and non-farm sectors should be

undertaken. Adjustment for differences in those factors, for which

empirical evidence is available will be helpful in deciding the product-

ivity of labor and thereby a path for resource allocation. In the

following section, the effect of some of these factors on farm and non-

farm incomes is discussed.

## IV  PRODUCTIVITY OF LABOR IN CANADIAN ECONOMY

The term 'Producitivity' of a resource has been defined in a

variety of ways. In its physical setting it has been used by Dunlop

and the National Association of Manufacturers[27] as ..."An increase in

productivity is an increase in output with the same resource (or the

same output with fewer resources.)" It has also been defined by

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[27] J. Dunlop, The Miracle of productivity, The Conference Board
New York, 1947. Cited in concepts and Problems in the measurement
and analysis of productivity. Interdepartmental Committee of Productivity
Analysis. Sept. 1951, Ottawa. National Association of Manufacturers,
New York. Economic Policy, Direction series no. 53, Sept. 1952.
Productivity-Gauge of Economic Performance. p. 2

Fabricant [28]as a measure of the efficiency with which resources are converted into commodities and services that man wants.

Evaluation of this efficiency in an industry, particularly in comparison to certain other industries, furnishes a better guide line for the adjustment of resources within an economy.

To reach an estimate of the productivity of a resource in an industry, a re-examination of the figures of farm and non-farm incomes is necessary. The difference in the incomes in the farm and non-farm sectors, as discussed in section II and III of this Chapter may have been caused by the presence of certain factors having different effects on different sectors of the economy. Lower farm incomes over a period of time may be a result of lower income elasticity of farm products and increasing purchases of inputs from other sectors where prices are rising due to monopolistic competitive policies. Lower incomes may also be the result of the relative fixity of labor in agriculture, due to differences in education, and other relevent factors. While estimating the real differences in the incomes of workers as an indicator of productivity, proper considerations should also be given to the nature of accounting of farm incomes and farm workers. An example of fallacies due to improper accounting techniques is the overstatement in the size of agricultural labor force due to the inclusion of part-time workers. Thus, the main factors which have to be examined with

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[28]Soloman Fabricant, Basic facts on Productivity change, Occassional Paper no. 63, National Bureau of Economic Research. 1959 New York.

respect to their effects on farm and non-farm incomes may be grouped

into three categories:

      A.   Prices of output and input services with their movement

            through time.

      B.   Period of employment of a factor as affecting level of

            earnings.

      C.   Differences in technical ability as affecting incomes.

In this section, the effect of these three factors on the

relative income disparity of farm and non-farm sectors is discussed.

A.   <u>Relative Prices and Productivity of Labor</u>: — From elementary

logic, one can deduce that the price of any commodity is an outcome

of the interactions of its demand and supply relations.  Demand for

agricultural products is affected by the growing level of per capita

income in the economy.  In general, when a country grows richer the

demand for food increases relatively little.  This results in either

a fairly constant or declining proportion of food expenditure relative

to total expenditure.  In Canada, during 1931-61, expenditure on food

decreased from 31.9 to 25.4 per cent.  (Table XXIX).

The differences in the income elasticity coeffecients for

products of the farm and non-farm sector can account for a reasonable

portion of income disparity between them.  For any product with an

income elasticity coefficient greater than one, a dollar increase in

incomes will result the demand for that product to increase by more

than one dollar.  This has the result in the long run that the industry

will expand and in the short run will exhibit higher prices as

TABLE XXIX

EXPENDITURE ON FOOD AS A PERCENTAGE OF TOTAL CONSUMERS' EXPENDITURES

IN CANADA, 1926-61.

| Period. | Proportion of total consumers' expenditures spent on food at Current prices. | Proportion of total consumers' expenditures spent on food at 1949 Prices |
|---------|------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1926-30 | 27.9 | 26.4 |
| 1931-35 | 31.9 | 25.2 |
| 1936-40 | 29.3 | 24.7 |
| 1941-45 | 31.2 | 27.7 |
| 1946-50 | 27.6 | 26.7 |
| 1951-55 | 26.0 | 25.3 |
| 1956-60 | 25.9 | 24.4 |
| 1961 | 25.4 | 23.7 |

Source: D.B.S. National Accounts: Income and expenditure, Series from 1926 to 1961.

relatively fixed supplies are rationed to consumers. Both cases result

in the industry offering income opportunities to its workers. On

the other hand, if the demand of the product is inelastic, by similar

reasoning it can be deduced that with increasing prosperity in the

rest of the economy the industry will not share economic progress

to its fullest extent.[29]

The lack of data on income elasticity coefficients for various

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[29]If there is a state of full employment with optimum allocation of resources, it will not follow.

products, at the micro-level, forbids the estimation of the exact disparity caused by this difference. As a substitute, to provide an indication of the difference between elasticities, data has been borrowed from the U. S. A., (Table XXX). Food, fuel, and light, according to this data, are the items whose increase in demand would be the lowest with an increase in the incomes, whereas, with increasing prosperity, increases in the demand would be greater for recreation, automobiles, and education.[30]

The changes in relative demands for various products, as caused by differences in income elasticity coefficients, will induce changes in the composition of industrial demand for resources. The demands for resources in industries producing high income elastic products will rise relative to the demands in industries producing low income elastic products. As a result industries of the latter type will tend to employ a declining share of the economy's total resources. Such a tendency has been revealed in Canadian agriculture, which verifies the statement that the demand for agricultural products in Canada is inelastic. As agriculture faces competition in the demand for resources, it may be out-bid by other industries; which tends to raise the price of resources used in farm production relative to the prices of farm products. Such a situation of increasing prices of inputs and relative constancy of output prices has been termed the cost-price squeeze.

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[30]Somewhat different estimates of the income elasticity coefficients for housing, education have been reported by certain other studies.

TABLE XXX

ESTIMATES OF INCOME ELASTICITY FOR CONSUMER PRODUCT CLASSES

UNITED STATES.

| Product classes. | Income elasticity (% change in expenditure with a one % in income.) |
|---|---|
| Food | 0.5 |
| Fuel and light | 0.5 |
| Tobacco | 0.7 |
| Housing | 0.8 |
| Medical care | 0.8 |
| Personal care | 0.8 |
| Reading materials. | 0.9 |
| Furniture and equipment | 1.0 |
| Clothings | 1.0 |
| Recreation | 1.3 |
| Automobile and travel | 1.3 |
| Education | 1.6 |

Source: R. P. Mack, The direction of change of income and the consumption function. Review of Economics and Statistics, 30. 239-258, 1948. The estimates have been taken from this study and are based on the 1935-36 consumer purchase survey.

Thus, as a result of a lower income elasticity for farm products, their prices do not increase as rapidly as those in the rest of the economy. This directly affects the income levels of workers engaged in agricultural production. In order to measure the real returns to farm workers, and the disparity between farm and non-farm incomes the effect of the price movement should be nullified.

The role of relative prices as affecting the real returns
to a factor can be indicated as:

1.  Movement of product prices over a period of time.

2.  Movement of prices of factors and products of various
industries.

In the following paragraphs, the effects of both of these
types of price movements on farm and non-farm incomes are discussed.

(1)  Constant Dollar Return to Labor in Farm and Non-Farm Sector: -
In order to eliminate the effect of price movement from incomes, over
a period of time, the most popular technique is to deflate the income
figures by prices.  One of the important considerations in the
deflationary process, is that of selecting a base for price index.
While making the comparison of the real product of two sectors, the
base of a price index may have another role to play.  If the movement
of prices has not been uniform for the products of the two sectors,
selection of different years as the base for price indices, may
completely change the relative values of the real product.

In this analysis four bases of deflation were employed;  1926,
1935-39, 1949 and 1961.  It is interesting to note that the real
product of labor in farm and non-farm sectors showed different ratios
when different deflating bases were used.  (Table XXXI.)  For example,
during 1956-60, the labor product on farms was lowest on 1935-39 prices,
(being $464 only) whereas the highest labor product was obtained on
1949 prices.  On the other hand, during the same period for the non-
farm sector the highest product was obtained when 1961 prices were

## TABLE XXXI

### CONSTANT DOLLAR LABOR PRODUCT IN FARM AND NON-FARM SECTORS ON FOUR BASES OF PRICE DEFLATION IN CANADA, DURING 1926-61. (TOTAL LABOR)

| Period | Agri. Labor Product per NME at price base | | | | Agri. Labor Prod. per NMU on 1949 prices $ | F/NF real labor product ratio | | | | | F/NF Lab. Pr. per NMU 1949 prices per cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1926 | 1935-39 Dollars | 1949 | 1961 | | Current | 1926 | 1935-39 per cent | 1949 | 1961 | |
| 1926-30 | 255 | 167 | 427 | 426 | 546 | 15.7 | 16.4 | 12.6 | 19.7 | 13.7 | 25.2 |
| 1931-35 | 41 | 13 | 123 | 98 | 157 | .3 | 2.8 | 1.1 | 6.2 | 2.8 | 7.9 |
| 1936-40 | 264 | 173 | 444 | 441 | 568 | 12.9 | 17.0 | 13.1 | 20.5 | 17.8 | 26.2 |
| 1941-45 | 571 | 376 | 966 | 953 | 1236 | 29.6 | 30.5 | 23.6 | 37.0 | 25.4 | 47.6 |
| 1946-50 | 583 | 368 | 941 | 936 | 1206 | 32.9 | 27.9 | 20.7 | 32.4 | 22.4 | 41.5 |
| 1950-55 | 724 | 488 | 1246 | 1239 | 1595 | 34.8 | 30.5 | 26.3 | 35.8 | 24.8 | 45.8 |
| 1956-60 | 706 | 464 | 1182 | 1176 | 1513 | 25.0 | 29.8 | 23.0 | 35.8 | 24.8 | 45.8 |
| 1961 | 534 | 350 | 894 | 889 | 1144 | 18.2 | 21.8 | 16.8 | 26.2 | 18.2 | 33.5 |

Source:  Estimated on the basis of data obtained from Dominion Bureau of Statistics (Agricultural, Price, National Accounts Division).

used as a base, being $4743 and the lowest one when the 1935-39 prices
were used as a base. This relatively different movement of prices for
the two sectors, has led the productivity ratio to fluctuate from one
base to another. The lowest ratio was obtained at 1935-39 prices, which
in a few instances was even lower than the current income ratio. The
highest ratio of productivity was obtained in 1949 dollars. It also
gave higher results as compared to the current income ratio. Especially
during 1951-55 the 1949 dollar ratio was 41.3 per cent as against only
34.8 per cent at current prices.

Thus, if 1949 is accepted as a normal price base, it can be
stated that productivity of farm labor is almost one-third that of
non-farm labor (on per NME basis). At the same time, if the real pro-
duct of farm labor is computed on per NMU basis, the relative productivity
varies between 7.9 and 45.8 per cent. Constant dollar product for each
of the industries in non-farm sector was also calculated at 1949 prices.
These figures have been presented in Table XXXII. The main effect of
the deflation process was a reduction in the income differentials
between industries, particularly since the depression. For example
during 1955-60 the highest income in current prices per NME was $5497
(in tertiary (NF.4) industry) and the lowest was $3861 (in secondary
(NF.3) industries); the average difference being $1636. In constant
(1949) prices, on the other hand, the leading industry was still tertiary
(NF.4), at an income level of $4240; but the lowest income now was
obtained in manufacturing (NF.2), being $2796 per NME. Thus, the
average difference, in income at 1949 prices was $1444 per NME, which

TABLE XXXII

CONSTANT (1949) DOLLAR LABOR INCOME PER NME IN NON-FARM SECTOR BY

INDUSTRIES IN CANADA DURING 1926-61. (Total Labor)

| Period. | NF 1. | NF 2. | NF 3. | NF 4. | NF 5. | Non Farm Total |
|---------|-------|-------|-------|-------|-------|----------------|
|         |       | Dollars |     |       |       |                |
| 1926-30 | 2899 | 1731 | 2672 | 2414 | 2208 | 2159 |
| 1931-35 | 2353 | 1807 | 2029 | 2246 | 2117 | 1982 |
| 1936-40 | 2578 | 1982 | 1949 | 2494 | 2168 | 2160 |
| 1941-45 | 3551 | 2185 | 2673 | 3253 | 2881 | 2607 |
| 1946-50 | 3659 | 2252 | 2979 | 3556 | 3491 | 2903 |
| 1951-55 | 3404 | 2393 | 2969 | 3939 | 3480 | 3014 |
| 1956-60 | 3644 | 2796 | 2999 | 4240 | 3487 | 3305 |
| 1961    | 3834 | 2922 | 2719 | 4402 | 3959 | 3404 |

Source: Same as Table XXXI

is slightly lower than the difference in current prices.

For the period 1941-61, the total labor income of various

provinces was also deflated by the provincial price index of farm

products. It resulted in two main effects: first in the case of

some provinces the incomes over a period of time showed a continuously

increasing trend, and secondly, the income disparity among provinces

indicated a higher magnitude. Increased intra-agricultural income

disparity was due to the fact that the incomes of certain provinces

(such as Prince Edward Island, Nova Scotia) went down, whereas they rose

in the case of Prairie provinces. (Table XXIII). However, the

regional pattern of incomes per NME did not undergo any substantial

TABLE XXXIII

PROVINCIAL LABOR PRODUCT IN CONSTANT (1949) DOLLARS IN CANADA DURING

1941-61. (FARM)

| Period. | PEI | NS | NB | QUE | ONT | MAN | SASK | ALB | BC |
|---------|-----|-----|-----|-----|------|------|------|------|------|
| | | Dollars | | | | | | | |
| 1941-45 | 322 | 426 | 484 | 651 | 939 | 1105 | 1289 | 977 | 967 |
| 1946-50 | 374 | 372 | 448 | 636 | 947 | 1046 | 1183 | 1115 | 915 |
| 1951-55 | 496 | 352 | 417 | 836 | 1157 | 982 | 2079 | 1651 | 1020 |
| 1956-60 | 536 | 401 | 515 | 811 | 1264 | 1095 | 1502 | 1443 | 1186 |
| 1961 | 338 | 436 | 329 | 849 | 1415 | 469 | 531 | 1655 | 1360 |

Source: Estimation based on data collected from Agriculture, and Price Division, Dominion Bureau of Statistics.

modifications. The Maritime provinces still maintain at the lowest incomes, and the leading provinces were again, the Prairies.

(2) Effect of Cost-Price Squeeze on Relative Return to Labor in

Farm and Non-Farm Sectors: — In recent years the expansion in the non-farm economy has tended to increase the prices paid by farmers for non-farm items. The prices for these items have moved more rapidly than the increase in farm prices. The situation is a price paid-price received squeeze, which has a depressing effect on farmers net income per unit of output.

The movement of prices in Canada during 1926-61 clearly supports the occurrence of a price paid-price received squeeze. (Table XXXIV and Chart 4). The index of farm prices showed an increasing trend up to the early fifties; followed by a drop of approximately 16 per cent

TABLE XXXIV

TRENDS OF VARIOUS PRICE INDICES FOR CANADA DURING 1926-61. (1935-39 = 100)

| Item | 1926-1930 | 1931-1935 | 1936-1940 | 1941-1945 | 1946-1950 | 1951-1956 | 1956-1960 | 1961 |
|---|---|---|---|---|---|---|---|---|
| Farm wholesale price index | 135.9 | 77.3 | 101.4 | 140.1 | 213.8 | 233.3 | 220.2 | 225.2 |
| Farm price index. | -- | 88.0 | 102.0 | 151.8 | 238.4 | 258.2 | 242.3 | 253.8 |
| Index of comm. and services used. | 127.2 | 94.9 | 102.2 | 140.2 | 187.9 | 237.7 | 261.9 | 282.2 |
| Wages of hired labor | 162.3 | 88.3 | 107.9 | 243.2 | 353.8 | 438.2 | 495.5 | 566.0 |
| Machinery and equipment | 116.3 | 92.5 | 101.2 | 120.2 | 162.1 | 207.4 | 216.0 | 226.7 |
| Farm machinery | 97.4 | 94.1 | 101.7 | 114.8 | 142.0 | 195.1 | 234.5 | 261.4 |
| Interest and taxes | 131.9 | 107.8 | 100.2 | 107.6 | 131.3 | 166.6 | 198.4 | 220.6 |
| Fertilizer and lime | 122.7 | 98.2 | 101.9 | 114.9 | 130.8 | 175.4 | 186.4 | 194.6 |
| Ratio of index of comm. and ser. farm prices. | -- | 1.079 | 1.002 | .923 | .788 | .920 | 1.081 | 1.112 |

Source:  Dominion Brueau of Statistics, Price and price index, Price Division.

F:NF LABOR PRODUCT IN
CONSTANT DOLLARS (1949), CANADA. 1926-61.

RATIO OF INDEX OF SERVICES USED AND
THAT OF FARM PRICES.
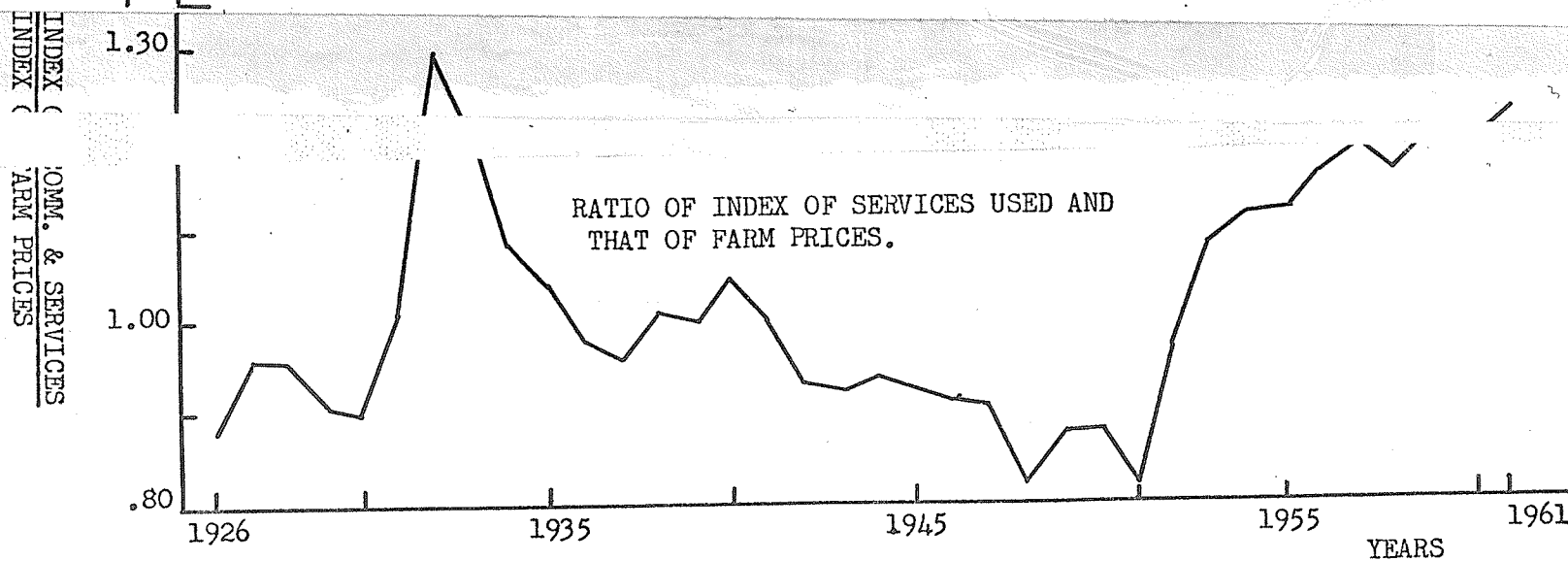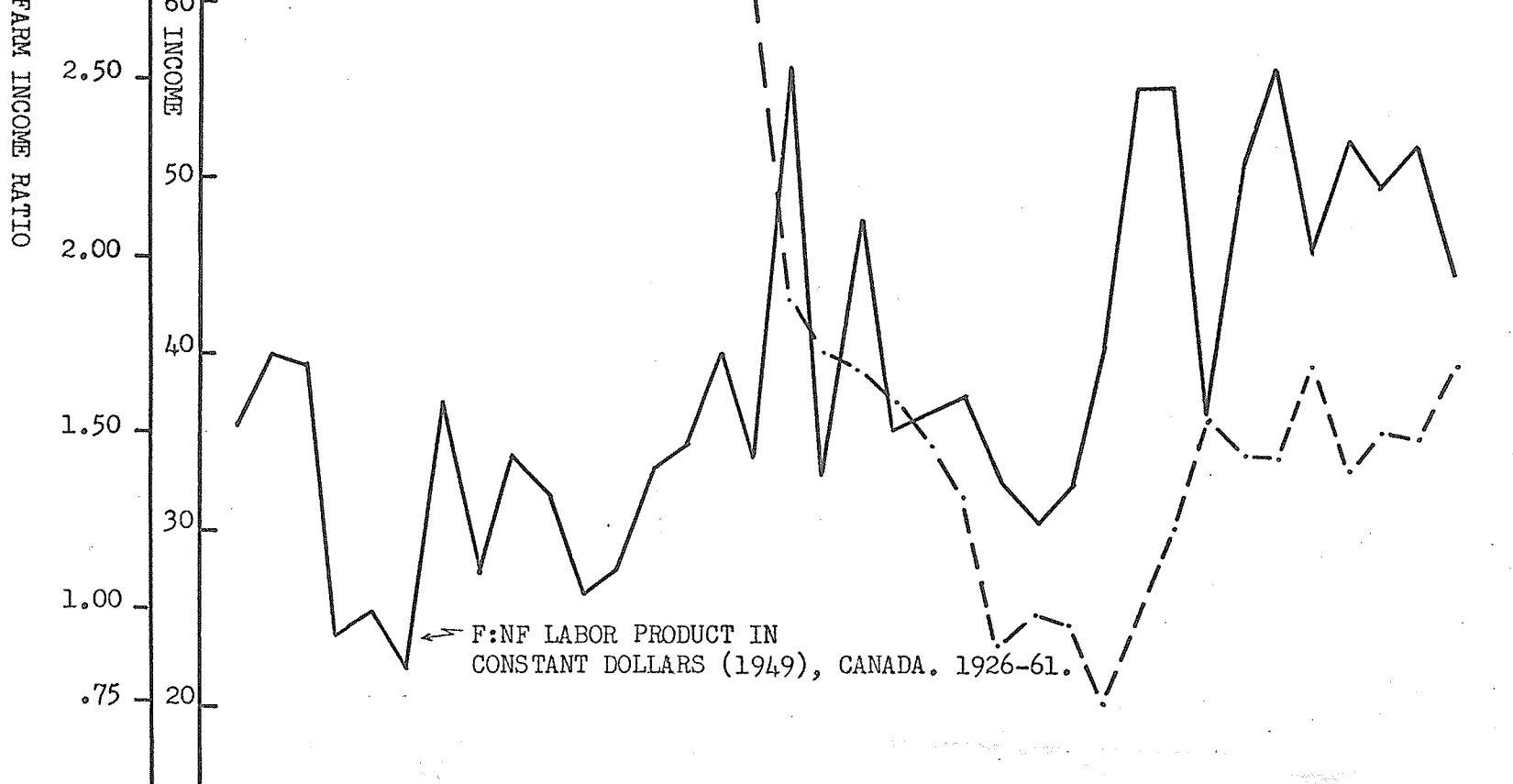
(Based on Data presented in Appendix IX)

of 1935-39 Prices in 1961. On the other hand, the index of commodities

and services used by farmers, shows an invariably increasing trend. The

resulting effect of different movements of these prices is the rise in

the ratio of the index of price of commodities and services used by

farmers to the index of prices of former produced goods. This ratio

was favorable to agriculture during 1941-55, but has moved unfavorably

to agriculture since then.

Among the individual items of costs, the hired labor prices

index shows the greatest tendency to rise, followed by the index of

farm machinery prices, interest, and taxes. On a 1935-39 base, farm

labor wages rose to a maximum of 566 per cent in 1961, whereas the

index of farm machinery increased by 261.4 per cent.

In order to eliminate the effect of the price paid-price

received squeeze from agricultural incomes, all the items of cost and

revenue were deflated separately.[31]

The elimination of these items from the data resulted in a sharp

rise in the productivity ratio of farm and non-farm labor. The farm

labor income after adjusting for this squeeze ranged between $601

during 1931-35 and $1692 during 1955-60. (Table XXXV, Chart 4).

Resultantly, the ratio of agricultural versus nonagricultural

labor product per NME varied between 30.3 and 51.1 per cent. In

comparison to the current price income ratio, this ratio is very high.

In almost every period, except during 1945-50, the increase in the

_____

[31]
   The details of this method have been shown in Chap. 5, sec. 3.

TABLE XXXV

CONSTANT DOLLAR (1949) PRODUCTIVITY RATIO OF FARMING INDUSTRY DURING

1926-61, CANADA

| Period. | Constant 1949 $ agri. total labor income per NME $ [a] | Ratio with Non-agri. total lab. income per NME % | Current prices income ratio. % | Col. 3 Col. 4. |
|---------|---------|---------|---------|---------|
| (1) | (2) | (3) | (4) | (5) |
| 1926-30 | 708 | 32.7 | 15.7 | 2.083 |
| 1931-35 | 601 | 30.3 | .3 | - |
| 1936-40 | 703 | 32.5 | 12.9 | 2.519 |
| 1941-45 | 1069 | 41.0 | 29.6 | 1.385 |
| 1946-50 | 986 | 33.9 | 32.9 | 1.030 |
| 1951-55 | 1435 | 47.6 | 34.8 | 1.368 |
| 1956-60 | 1692 | 51.1 | 25.0 | 2.044 |
| 1961 | 1493 | 43.8 | 18.2 | 2.407 |

[a] Figures were derived by using the All-Item Deflation Method For details of the technique, see p. 86, of this manuscript.

Source: Estimation based on data obtained from Agricultural Division, Dominion Bureau of Statistics.

ratio was at least 36 per cent.

Thus, the unfavorable terms of trade for agriculture explain a substantial part of the over all labor income disparity between farm and non-farm sectors.

B. Employment of Labor Force and Relative Efficiency of Agriculture: -

An industry normally supports two very distinct kinds of paid workers:

those with permanent employment and those who are casually hired. At the same time, in the case of self-employed workers, one may also encounter two different categories:

(a)  those who are fully dependent on the industry in which they have been classified, and

(b)  those who are partly dependent. Reported earnings in the industry in turn, will be affected by two factors:

1.  The extent to which a casual wage earner remains unemployed but, is classified as a full time earner, and

2.  The number of part-time self-employed workers, who work outside the business in which they have been classified.

The effect of the second factor has been pointed out as being very serious in the case of farmers. It has been argued that many individuals reported as such are not farmers in the real sense of the word. As for most of them, agriculture is not even their main source of income.

In the following analysis the effects of these two biases are seperated from the labor income.

(1)  Comparison of Wages Per Week of Employment: -

To eliminate the effect of length of employment of the casual workers, the earnings of wage earners per person per week of employment were calculated for 1961. The highest earnings per week of employment for hired labor were in managerial occupations followed by that of the professionals. The levels of earnings in these occupations

were $147.30 and $124.68 respectively. (Table XXXVI). At the other

extreme, farm labor had the lowest earnings, being only $42.97 on a

per week basis.

TABLE XXXVI

WAGE EARNINGS OF MALE WORKERS BY OCCUPATIONS PER PERSON AND PER WEEK

OF EMPLOYMENT, CANADA, 1961.

| Occupation | Av. earning per worker. $ | Av. weeks of employment. # | Earnings per week of employ. $ |
|---|---|---|---|
| Managerial | 6673 | 45.3 | 147.30 |
| Professional | 5448 | 43.7 | 124.68 |
| Clerical | 3409 | 42.8 | 80.21 |
| Sales | 3908 | 42.5 | 93.05 |
| Service | 3161 | 42.0 | 75.25 |
| Transport | 3415 | 41.3 | 82.68 |
| Farm | 1401 | 32.6 | 42.97 |
| Loggers | 2016 | 28.4 | 70.98 |
| Fishermen | 1531 | 25.2 | 60.75 |
| Miners | 3973 | 41.6 | 95.50 |
| Craftman | 3566 | 41.2 | 86.55 |
| Laborer | 2192 | 34.2 | 64.09 |

Source:  Compiled from 1961 census, Volume III

To make a comparison of the earnings, the ratio of farm labor and non-farm industrial laborers' earnings was compared. For 1961 this ratio was 0.67.[32] The level of this ratio does not give a very discouraging impression about the efficiency of farm workers. They received for the same unit of time earnings of about two-thirds of the non-farm workers' income.

(2) Effect of Part Time Farming on Agriculture Efficiency: - To eliminate the effect of the second bias, two alternative methods were employed. The first method was: To find the number of part time workers, in agriculture. By converting these workers into full time workers the earnings per full time worker were calculated. The second method used was to estimate the overall efficiency of a farm worker. In this case the income from non-farm employment was added to the labor income from farming, and then, a ratio of farm/non-farm workers' income was computed.

The results obtained by the first method are presented in Table XXXVII. The adjusted income of a full-time farm self-employed worker ranged between $734 during 1941-45 and $1582 in 1951-55. The extent of increase in the adjusted income, as relative to the unadjusted one, can be visualized by the proportion of part time workers to total.

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[32]The ratio was derived as $\frac{\$ 42.97}{\$ 64.05} = .67$

TABLE XXXVII

EFFICIENCY RATIO OF FARM AND NON-FARM SELF-EMPLOYED WORKERS' INCOME

PER NME (AFTER ADJUSTING THE FARM INCOMES FOR PART-TIME WORK)

IN CANADA DURING 1941-61.

| Period. | Per farm oper. income unadj. | Extent of part time workers | Adj. farm incomes a/ | Ratio F/NF |
|---------|------|---------|------|---------|
| | $ | Per cent | $ | Per cent |
| 1941-45 | 635 | 13.5 | 734 | 33.2 |
| 1956-50 | 904 | 13.6 | 1046 | 42.1 |
| 1951-55 | 1353 | 14.5 | 1582 | 54.4 |
| 1956-60 | 1046 | 16.8 | 1257 | 33.1 |
| 1961 | 674 | 18.2 | 824 | 21.7 |

a/ The adjustment was made in the number of farm operators to account for part-time workers on farms. For details of technique see p.91, of this manuscript.

Source: Estimation based on data obtained from 1941, 1961 census, and table XIX.

In 1941-45 the part time workers were only 13.5 per cent to total farm operators, whereas in 1961 their proportion rose to 18.2 per cent.

The ratio of adjusted farm income to the non-farm incomes per NME varied between 21.7 and 54.5 per cent. The highest ratio was obtained during 1951-55 and the lowest one in 1961.

The second method estimated the incomes per NME of unpaid farm and non-farm workers from all sources of employment. A farm worker during 1941-61 according to this estimate, obtained on an average

an income varying from $884 to $2132 per NME. (Table XXXVIII). The

corresponding range for the unpaid non-farm workers' income per NME

was between $2127 and $3948. Both of the income series showed an

increasing trend during this time. The increase in farm income from

all sources had not been very rapid in the period 1956-60, with the

result that the ratio declined slightly after 1951-55. The highest

ratio attained in this case was 70.9 per cent during 1951-55 period.

The results obtained from this analysis seem to agree with

the statement given by Johnson on labor capabilities. He stated that

..."the workmanlike capacities of many farmers are equal to those of
semi-skilled and skilled workers in non-farm employment and that by
and large these capacities are used less effectively in agriculture
than in industry". [33]

Partly this may be true due to the inability of certain units to provide

year round gainful employment to the workers.

C. Years of Schooling and Its Relationship to Efficiency: - The years

of schooling have been described as a factor which is positively

related with the income of the worker. For Canada, there is no

evidence available to test this statement. However, an indication of

its indirect effect on incomes can be obtained by studying the educat-

ional standard of workers in various industries and occupations.

Table XXXIX shows the years of schooling of all the workers in

various industries and occupations during 1941-61. Total years of

schooling in Canada have increased over time from 8.27 years in 1941

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[33]
D. G. Johnson, Comparability of labor capacities of farm and
non-farm labor. American Economic Review, Vol. 43. 1963.

TABLE XXXVIII

INCOME PER NME OF UNPAID FARM AND NON-FARM WORKERS FROM ALL SOURCES

IN CANADA DURING 1941-61

| Period. | Farm | Nonfarm | F/NF |
|---------|------|---------|------|
|  | Dollars |  | Per cent |
| 1941-45 | 884 | 2127 | 41.6 |
| 1946-50 | 1358 | 2518 | 53.9 |
| 1951-55 | 2124 | 2997 | 70.9 |
| 1956-60 | 2132 | 3909 | 54.5 |
| 1961 | 1950 | 3948 | 49.4 |

Source: Estimated on the basis of data obtained from Agricultural Division, Dominion Bureau of Statistics.

to 9.35 years in 1961. Average years of schooling were highest for workers in the service industries, (10.07 years in 1951) and lowest for workers of resource and agriculture industries. Thus, workers in the primary industries as a group have the lowest education level in the economy.

Another indicator in the disparity of education has been provided by the percentage of total workers in the lowest and highest grade categories. The figures in this table indicate that the farm workers are mostly concentrated in the low grades and only 2.0 per cent of the total had the equivalent of grade thirteen or more. Moreover, it indicates that the education level of farmers is comparatively very low.

The relation between years of schooling and income, can be

TABLE XXXIX

YEARS OF SCHOOLING BY INDUSTRIES AND OCCUPATIONS, CANADA DURING 1941-61.

| Industry or occupation. | Av. year of schooling | | | % of total in 0-5 grade. | | | % of total in 13$^+$ grade | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1941 | 1951 | 1961 | 1941 | 1951 | 1961 | 1941 | 1951 | 1961 |
| All industries | 8.27 | 8.82 | 9.35 | 10.4 | 7.1 | 6.2 | 7.3 | 10.3 | 8.8 |
| Agriculture | 7.03 | 7.39 | - | 15.6 | 11.8 | - | 1.3 | 2.0 | - |
| Resource | 6.68 | 7.23 | - | 25.8 | 19.8 | - | 2.7 | 4.5 | - |
| Manufacturing | 8.49 | 8.68 | - | 7.4 | 6.1 | - | 5.9 | 7.6 | - |
| Transport | 8.05 | 8.52 | - | 10.9 | 7.6 | - | 4.7 | 6.2 | - |
| Trade | 8.95 | 9.75 | - | 5.2 | 2.9 | - | 12.1 | 12.2 | - |
| Services | 9.55 | 10.07 | - | 5.9 | 4.1 | - | 18.2 | 23.1 | - |
| Non agri. | 8.70 | 9.09 | - | 8.6 | 6.3 | - | 9.4 | 11.8 | - |
| Farmers | 6.90 | 6.95 | 7.38 | 18.5 | 13.7 | 14.3 | 1.5 | 1.8 | 1.5 |
| Owners | 9.10 | 9.91 | 10.50 | 6.9 | 4.1 | 2.9 | 11.5 | 18.8 | 15.4 |
| Professional | 12.30 | 12.77 | 12.90 | .3 | .1 | .3 | 50.9 | 59.7 | 48.6 |
| Laborers | 7.12 | 7.38 | 7.52 | 17.8 | 14.5 | 14.8 | 1.5 | 2.3 | 2.2 |

Source: Estimated on the basis of data obtained from the 1941, 1951 and 1961 census of Canada, Volume III.

established with the data obtained from a survey conducted in Eastern

Canada in 1962.[34]  This data is condensed in Table XL.  The table

clearly shows that the increase in the years of schooling was

associated with higher levels of income, in almost all provinces studied.

In Ontario, the average years of schooling in the case of operators

selling less than $2500 worth of produce, was 7.5 years, whereas

those selling more than $5000 worth of produce had an average schooling

of 8.7 years.  This evidence supports the statement that years of

schooling has an influence on the level of earnings, or at least that

levels of incomes andyears of schooling are very highly correlated.

V  CONCLUSION:  EFFICIENCY OF CANADIAN AGRICULTURE

An analysis of farm and non-farm incomes, as presented in this

chapter tends to support the hypothesis that incomes of farm workers

is lower than that of non-farm workers.  However, this analysis has

also indicated that farm and non-farm income disparity differs according

to the accounting procedure used to measure the incomes and the labor

force of a sector.  Substantiations of this statement can be made on

the basis of the following evidence:

1.  Farm and non-farm sectors when classified according to

different types of industries revealed different magnitudes of income

disparity between the two sectors.

2.  When incomes of the labor force was computed on the basis

of type of workers, incomes of wage earners in almost every industry

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34
   Cited in the House of Commons Debates. op. cit.

TABLE XL

AGE AND EDUCATION CHARACTERISTICS BY INCOME GROUPS OF SELECTED FAMILIES

IN EASTERN CANADA, 1962.

| Value of product sold $ | % of the total families | Av. age of oper. | Av. year of schooling of Oper a/ | Ad. Ch b/ | % with training Oper a/ | Ad. Ch b/ |
|---|---|---|---|---|---|---|
| ONTARIO | | | | | | |
| < 2500 | 33 | 52 | 7.5 | 9.7 | 8.0 | 28.4 |
| 2500-4999 | 38 | 49 | 7.9 | 10.5 | 8.9 | 44.3 |
| 5000 and more. | 29 | 46 | 8.7 | 10.3 | 7.0 | 54.0 |
| All groups. | 100 | 49 | 8.0 | 10.2 | 8.1 | 41.2 |
| QUEBEC | | | | | | |
| < 2500 | 50 | 48 | 5.7 | 7.5 | 2.3 | 11.5 |
| 2500-4999 | 34 | 45 | 5.9 | 7.5 | 8.8 | 15.5 |
| > 5000 | 16 | 44 | 6.6 | 8.4 | 6.4 | 35.0 |
| All groups. | 100 | 46 | 5.9 | 7.6 | 5.5 | 15.9 |
| NEW BRUNSWICK | | | | | | |
| < 2500 | 32 | 51 | 6.5 | 8.6 | 11.1 | 16.1 |
| 2500-4999 | 38 | 50 | 7.0 | 9.8 | 12.5 | 35.2 |
| 5000+ | 30 | 49 | 7.6 | 10.7 | 7.7 | 42.0 |
| All groups. | 100 | 50 | 7.0 | 9.6 | 10.6 | 30.6 |
| NOVA SCOTIA | | | | | | |
| < 2500 | 44 | 51 | 8.6 | 10.2 | 10.3 | 23.7 |
| 2500-4999 | 24 | 49 | 9.8 | 10.6 | 4.8 | 48.1 |
| 5000+ | 32 | 51 | 9.4 | 10.6 | 17.9 | 40.8 |
| All groups. | 100 | 51 | 9.0 | 10.4 | 11.4 | 34.8 |
| PRINCE EDWARD ISLAND | | | | | | |
| < 2500 | 43 | 50 | 7.8 | 10.7 | 15.4 | 50.0 |
| 2500-4999 | 30 | 48 | 7.8 | 11.3 | 33.3 | 85.7 |
| 5000+ | 27 | 44 | 9.0 | 10.5 | 12.5 | 33.3 |
| All groups. | 100 | 48 | 8.2 | 10.8 | 20.0 | 54.3 |

Source:  House of Commons Debates.  op. cit.

a/ Operator

b/ Adult Children.

TABLE XLI

RELATIVE EFFICIENCY OF AGRICULTURAL INDUSTRY IN CANADA FOR

TOTAL LABOR DURING 1941-61.

| Period. | Farm labor income per NME adj. for part-time work. $ | Price ratio of labor prod. by all item deflation method. | Farm labor product in const. prices. $ | Ratio F/NF Per cent |
|---|---|---|---|---|
| 1941-45 | 633 | 1.846 | 1168 | 44.8 |
| 1946-50 | 981 | 1.119 | 1098 | 47.8 |
| 1951-55 | 1437 | 1.126 | 1618 | 53.7 |
| 1956-60 | 1284 | 1.507 | 1935 | 58.5 |
| 1961 | 966 | 1.679 | 1622 | 47.7 |

Source: Estimated on the basis of data obtained from Agricultural Division and Price Division, Dominion Bureau of Statistics.

were higher than the incomes of self-employed workers.

The analysis has also revealed that the farm income problem is a regional problem as well. Regions differ widely in the magnitude of farm and non-farm income differentials.

When an attempt to identify the factors affecting real returns to labor in farm and non-farm sectors was made, the role of prices and part-time employment seemed to be fairly significant and proved to be empirically testable. The two sectors are adjusted for the differences in these two factors, then the average productivity ratio of farm and non-farm workers per NME ranges between 37.8 and 58.5 per

cent during 1941-61. (Table XLI). This means, that during the post depression period, average efficiency of farm laborers has been close to one-half that of non-farm laborers.

CHAPTER VII

OTHER CHARACTERISTICS OF AGRICULTURAL INCOMES

The disparity between incomes of workers in the farm and non-farm sectors in Canada is also accompanied by two other problems: (1) Disparity of incomes within agricultural industry, and (2) Short run inequality or fluctuation in incomes over a period of time. This chapter will be devoted to a discussion of the nature and magnitude of these two problems, particularly for the incomes of the farm sector.

I.  INTRA-AGRICULTURAL INCOME DISPARITY.

The problem of intra-agricultural income disparity can be studied in several dimensions, such as disparity according to location of farms, the size of farm business, capital investment, type of enterprise, owner-ship of the farm business. But the criterion for the classification of the farms, which has attracted the attention of statisticians and farmers (and their organizations) is that by Provinces. This has resulted in Canadian agricultural policies reflecting a tendency of regionalism. The interest in the national agricultural policies, too frequently, is biased by the politically more popular regional or local issues, for example, the policy of freight subsidy on feed grains shipped from west-ern to eastern Canada was initiated as a war time measure, but its con-tinuation after the war indicates that at least some federal policies have been initiated and continued as a result of political pressures. As the problem of intra-agricultural income disparity seems to be very

important from a policy point of view, an investigation into its real

nature and magnitude is necessary, which will be made in the following

discussion.

A. <u>Magnitude of Intra-Agricultural Income Disparity</u>:- The magnitude of

intra-agricultural income disparity was investigated by classifying farms

according to: (1) provinces, (2) size of farm business, and (3) types of

farm enterprises.

(1) <u>Provincial</u>:

The regional pattern of farm incomes according to type of workers

was described in section III.A. of Chapter VI. In this section the dis-

cussion of intra-agricultural income disparity, according to provinces,

will be made on per operator basis. The incomes of farm operators in

different provinces during 1926-61 are shown in chart 5. The income

levels in almost every province have increased over this period of time,

with their relative peak in 1950-55 and decreasing slightly in the period

since. The chart indicates that the Maritime provinces, i.e., Prince

Edward Island, Nova Scotia and New Brunswick, have been at a relative

disadvantage in terms of the levels of incomes to farm operators. These

provinces have a chronically lower level of farm incomes. The Prairie

Provinces, i.e., Manitoba, Saskatchewan, and Alberta, maintain a rela-

tively higher, but very fluctuating income trend. British Columbia and

Ontario run in between the two extremes. The obvious conclusion that can

be drawn from the chart is that Canadian agriculture, in its provincial

income pattern is very heterogeneous.

CHART 5                    167

INCOME OF FARM OPERATORS (BY PROVINCES)
CANADA, 1931-61
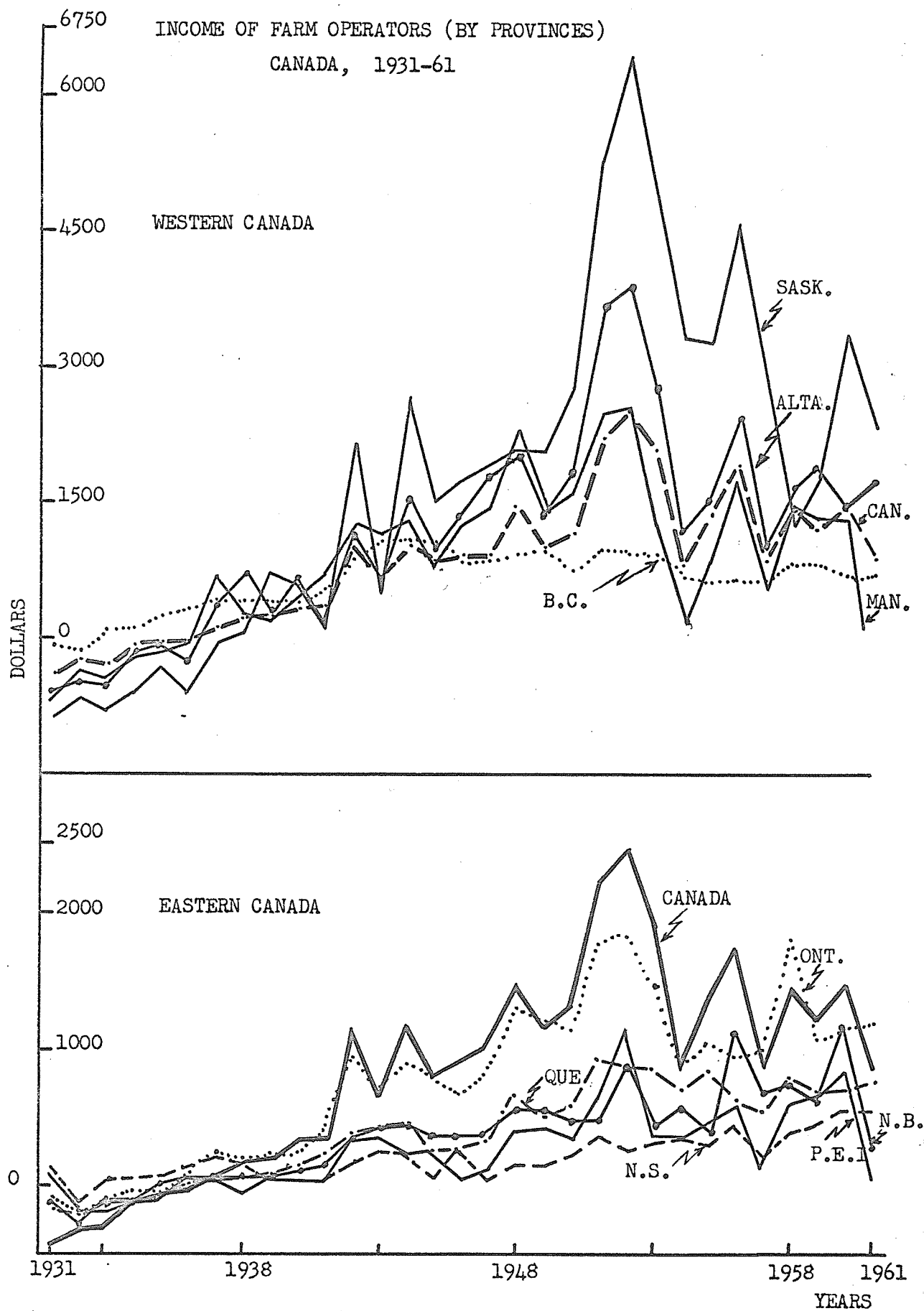


(Based on Data presented in Appendix X)

The extent of heterogeneity on the basis of income of farmers from farming sources only, may be regarded as a partial picture of the total disparity. In order to test this statement, it is hypothesized that the regional differences in the farm incomes can partly be explained by the fact that farm families in the various regions supplement their incomes from farming with income from other sources. The hypothesis was tested by analyzing total income of farmers in various provinces according to source. A regression function between the incomes of farm operators from farming and those from non-farm employment was fitted; and the following results were obtained:

$$\hat{Y} = 1090 - .2013\ X$$

where Y is the average income per farm from non-farm employment, and X is the average income from farming in a province. The correlation coefficient between these two types of incomes was found to be -0.2649, but was not significant at the five percent probability level.

As the results from this method were not found to be statistically significant, and in a way inconclusive, the contribution of various sources to total farm operators' income was calculated. On the basis of these figures it seems that in the provinces where farm operators had lower incomes, the contribution from non-farming sources was fairly high. (Table XLII). In the Maritimes, the non-farm sources contributed 40.9 percent to the total income; about 6.2 per cent higher than that provided by the farm sources. On the Prairies, on the other hand, the non-farm source income is much lower than that from farm sources. The farm sources in this region contributed to an extent of 68.8 percent of the

TABLE XLII

SOURCES OF FARMERS' INCOME, CANADA AND PROVINCES. 1958.

(As percentage of the total income.)

| Province | Farm Sources | Non-farm Employment | Govt. | Other a/ Sources | Per Farm Income From All Sources |
|---|---|---|---|---|---|
| | % | % | % | % | $ |
| Prince Ed. Is. | 55.9 | 25.9 | 16.6 | 1.6 | 2297 |
| Nova Scotia | 39.3 | 37.5 | 20.5 | 2.7 | 2341 |
| New Brunswick | 20.2 | 51.1 | 25.2 | 3.5 | 2113 |
| Maritimes | 34.7 | 40.9 | 21.6 | 2.8 | 2237 |
| Quebec | 41.2 | 36.7 | 18.8 | 3.3 | 2090 |
| Ontario | 46.6 | 38.4 | 8.9 | 6.1 | 3087 |
| Manitoba | 67.1 | 17.5 | 9.1 | 6.3 | 2626 |
| Saskatchewan | 68.0 | 14.9 | 9.5 | 7.6 | 2341 |
| Alberta | 70.0 | 15.8 | 7.1 | 7.1 | 3152 |
| Prairie | 68.8 | 15.8 | 8.5 | 6.9 | 2681 |
| British Columbia | 37.5 | 46.3 | 10.8 | 5.4 | 3323 |
| Canada | 53.3 | 29.4 | 11.5 | 5.8 | 2502 |

a/Includes the income from investment, annuities, dividends, inheritance and other gifts.

Source:   Estimated from the 1958 Farm Business Survey with adjustments made for the differences in the concepts used.

total income as against only 15.8 percent from non-farm sources.  The prov-inces of British Columbia and New Brunswick are the ones where on an average non-farm employment income was the main source of the total income, while

in Alberta and Saskatchewan, income from the farm constituted the major

source. Thus, off-farm work is one of the alternatives which a farmer

adopts in order to solve the current problem of low incomes. It is not nec-

essarily the best solution for the agricultural segment as a whole, but it

has offered many farm operators the chance to follow their chosen career

where otherwise they might have found it necessary to find an undertaking

less to their liking.[1]

The evidence in support of this hypothesis points out a fallacy in

the reasoning usually advocated in connection with lower farm incomes. The

conclusion of lower farm incomes is generally based on an investigation of

the incomes of farm sector from farm sources only. But a valid conclusion

regarding the sectoral prosperity and/or welfare cannot be drawn just on

the basis of comparing incomes of farmers from farming sources, with in-

comes of non-farm people. However, in this chapter, no attempt has been

made to justify the disparity in incomes from all the sources; this topic

will be discussed in the next chapter.

(2) Disparity in income on Commercial farms Classified according to size

of Farm Business:

While classifying the farms according to the value of product

sold, only commercial farms[2] were considered. According to the 1958 Farm

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[1] D.M. Jones, Wisconsin Farms and their Non-farm job, Wisconsin
State dept. of agri., Bull. no. 343, Madison, 1958, p.37.

[2] This category of farms was obtained by deducting the following
types of farms from the total: Forestry holdings, other non-agricultural
holdings, agricultural service holdings, institutional farms, partnership
farms, managerial farms, and multiple unit farms.

Business Survey, these farms constituted 93.5 percent of total farms in Canada. The income measure for these farms was slightly different from the ones previously used: It was simply the net income per farm.[3] The net income per farm of farms of various sizes is presented in Table XLIII.

As the value of product sold increases, net income per farm also increases. On farms with value of product sold below $999, the cost of production was relatively so high that it left farmers with a negative income of $194 per year. At the other extreme, there were also farms whose net income, on an average basis, reached $8545 per year.

The magnitude of intra-agricultural income disparity can be visualized as that on an average 49.7 percent of the total commercial farms did not have any incomes from farming, while 3.9 percent of the total farms obtained an income of $5170 or more per year. On average, a commercial farm in Canada received an income of $1207 per year. These figures, per se, do not give any idea about the income differential relative to non-farm incomes. But results, however, have shown that farmers with average managerial ability obtain higher returns to labor and other resources in farming than persons in non-farm employment using similar resources.[4]

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[3]Because of non-availability of a certain set of data, labor product could not be computed on per NME basis. The net income per farm as calculated in this case was obtained as: Cash incomes + Farm kind income + value of farm inventories – Cash expenditure – Depreciation = Net Income. Net Income ÷ No. of farm = Net Income per Farm.

[4]G. W. Dean, E. O. Heady and H. H. Yeh, An analysis of returns from farm and non-farm employment opportunities in Shelby-Grundy Haig soils. Iowa state college, Agri. Expt. station, Res. Bull. No. 45, May 1957, p.114.

TABLE XLIII

NET INCOME PER FARM ON FARMS CLASSIFIED ACCORDING TO THE VALUE OF
FARM PRODUCTS SOLD, CANADA, 1958 (COMMERCIAL FARMS ONLY)

| Category Dollars | No. of Farms 000, # | % of Total Farms | Gross Income Mill. | Net Income $ | Net Income per farm $ |
|---|---|---|---|---|---|
| 0- 999 | 93.1 | 19.2 | 93.0 | - 18.0 | - 194 |
| 1000- 1999 | 77.7 | 16.1 | 179.7 | 25.5 | 328 |
| 2000- 2999 | 69.6 | 14.4 | 228.9 | 45.2 | 649 |
| 3000- 3999 | 57.2 | 11.8 | 254.0 | 64.2 | 1122 |
| 4000- 4999 | 44.7 | 9.2 | 238.9 | 61.2 | 1369 |
| 5000- 5999 | 31.5 | 6.5 | 200.7 | 53.5 | 1698 |
| 6000- 7999 | 42.6 | 8.8 | 339.9 | 109.8 | 2578 |
| 8000- 9999 | 24.7 | 5.1 | 241.9 | 67.5 | 2737 |
| 10000-14999 | 24.2 | 5.0 | 317.8 | 87.9 | 3634 |
| 15000-19999 | 9.0 | 1.9 | 162.9 | 46.6 | 5170 |
| 20000-24999 | 4.1 | 0.8 | 90.9 | 9.8 | 2378 |
| 25000+ | 5.2 | 1.2 | 230.8 | 44.8 | 8545 |
| All Farms | 483.7 | 100.0 | 2579.0 | 583.6 | 1207 |

Source:  Estimation on the basis of the data supplied by the 1958 Farm
Business Survey division, Dominion Bureau of Statistics.

(3)  Disparity in Income on Commercial Farms Classified according to

Major Enterprise:

The same group of commercial farms was also classified according to
the major enterprise followed on the farms, and the net income per farm for
each category was calculated. The most profitable enterprise in Canada was

Dairy farming, found on 17.9 percent of total commercial farms, with an average income of $1547 per year. (Table XLIV) Cash grain farms were the next in rank, having an average income of $1523 per farm per year. As a group, the crop farms, which constituted 26.6 percent of the total commercial farms, had higher income than that on the livestock farms. A livestock farm on an average received an income of $1223 per year as against that of $1375 per year on a crop farm. The unprofitable enterprises in 1958 were poultry, fruits and vegetables, and mixed farming. Moreover, the disparity of incomes on the farms classified according to types of enterprises was of less magnitude than that revealed by the farms classified according to provinces or according to size of farm business.

Thus, it can be concluded that intra-agricultural income disparity is a fairly serious farm problem. Income levels differ from province to province and within the same province on farms of various sizes; and to some extent on farms following different types of enterprises.

B. Factors Affecting Intra-agricultural Income Disparity:- Theoretically many factors can be enumerated as the ones which tend to create disparity of income within agriculture, particularly when the farms are classified according to provinces. Schultz[5] has suggested four factors affecting intra-agricultural income disparity:

1. Rate of technological innovations. /

2. Natural increase in farm population.

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[5]T. W. Schultz, Agriculture in an Unstable Economy, McGraw Hill Book Co., New York, 1945, op. cit. pp.108-109.

TABLE XLIV

NET INCOME PER FARM ON FARMS CLASSIFIED ACCORDING TO THE TYPE OF
ENTERPRISE, 1958. (COMMERCIAL FARMS ONLY)

| Particulars | No. of Farms 000, # | % of Total Farms | Gross Income Mill. | Net Income $ | Net Income per Farm $ |
|---|---|---|---|---|---|
| Cattle | 133.4 | 27.6 | 774.4 | 143.6 | 1077 |
| Dairy | 86.8 | 17.9 | 465.8 | 134.4 | 1547 |
| Poultry | 14.9 | 3.1 | 112.6 | 6.3 | 422 |
| Livestock combinations | 75.6 | 15.6 | 343.6 | 95.8 | 1268 |
| Total livestock | | 64.2 | | | 1223 |
| Wheat | 60.4 | 12.5 | 324.4 | 86.4 | 1429 |
| Cash grain | 45.8 | 9.5 | 250.3 | 69.8 | 1523 |
| Sp. field crops | 18.4 | 3.8 | 117.2 | 15.0 | 818 |
| Field crop.comb. | 3.7 | 0.8 | 20.4 | 5.3 | 1433 |
| Total crop farms | | 26.6 | | | 1375 |
| Fruits and veg.. | 16.1 | 3.3 | 73.0 | 7.9 | 494 |
| Miscellaneous | 2.7 | 0.5 | 17.9 | 3.7 | 1354 |
| Mixed farms | 25.6 | 5.4 | 79.6 | 15.2 | 594 |
| All farms | | 100.0 | | | 1207 |

Source: Same as Table XLIII.

3. Pattern of change in demand.

4. Barriers to migration.

The effect of these factors is to influence the level of farm income

either directly, or indirectly through bringing about an optimum alloca-
tion of resources in the economy. For Canada in particular, due to unavail-
ability of data on these items, their effect could not be estimated. How-
ever, the rate of technological innovation and barriers to migration are re-
flected in one measure—amount of capital investment on farm. If the farm
operator possesses sufficient capital, enough to allow him to use modern
technologies, the adjustment pattern he will choose over the long run may be
different from the one adopted by a farmer who has less capital.[6] In the
following section, levels of farm capital investment in various provinces
are analyzed so as to see whether an explanation of intra-agricultural in-
come disparity may be devised.

C. <u>Farm Capital and Income Disparity within Agriculture</u>:- The amount and
structure of farm capital can be postulated as having a bearing on farm in-
come levels. If the relation between farm income level and capital invest-
ment is true, a part of the lower income levels in the Maritimes and Quebec
may easily be a result of lower capital resources on these farms. This re-
lation raises a paradoxical situation for the industry as a whole. As lower
capital investment leads to lower level of incomes,[7] it restricts the intern-
al financing of the growth of capital on farms. It causes the farms to run
at chronically lower levels of incomes. The situation remains circular as

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[6]A farmer with a smaller amount of capital will put more weight on
income disparity between his farm and non-farm incomes and may thereby have
greater incentive to migrate to non-farm alternatives. On the other hand
a farmer with higher level of farm capital investment may be lacking in
this type of incentive.

[7]It will be true only when the previous relationship is verified.

in his normal functioning a poor farmer is not in a position to obtain

higher income. Along with the internal financing of the farm through

generation of capital and, thereby, enhancing level of farm incomes, capital

investment also acts as a motivating force to adopt a particular type of

adjustment to resource use structure. The farm, as it normally exists, is

a combination of a firm as a business unit and a household as a consumption

unit. At any point of time, the farmer has to make certain decisions with

respect to the income flow to be allocated between (a) current consumption

and saving, as a reserve towards future consumption, or (b) re-investment

in the business as a basis for later income and consumption. The optimum

allocation of income between consumption and capital accumulation depends

on the nature of the time opportunity curve facing the individual (or

family) and his time preference.[8] On this basis it can be shown that, with

income at a very low level, very little will be transferred to the saving

fund. At the higher level of income, on the other hand, savings account

for disposition of the greater portion of current incomes.

Most of the income comparisons indicate that farm incomes are very

low. However, in spite of these low incomes, it has been shown for the

U. S. A. that farm operators are in a position to accumulate considerable capital

assets. (Table XLV). So far, for Canada, no such study has been conducted,

and any such investigation would be beyond the present study. As a

substitute, a rough idea of farm capital assets' accumulation

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[8]For further discussion, see E. O. Heady, Economics of Agri. production; op. cit. p. 423-24.

TABLE XLV

DISTRIBUTION OF SPENDING UNITS BY TOTAL ASSETS WITHIN

OCCUPATIONAL GROUPS, 1950.

| Occupational Groups | Zero | TOTAL ASSETS. ($) | | | | | Over |
|---|---|---|---|---|---|---|---|
| | | 100 to 500 | 501 to 1000 | 1001 to 2000 | 2001 to 5000 | 5001 to 10000 | 10000 |
| | | | | Percent | | | |
| Professional and semi-professional | 1 | 4 | 4 | 11 | 21 | 17 | 42 |
| Managerial | - | 4 | 1 | 3 | 14 | 19 | 59 |
| Self-employed | 1 | - | 1 | 3 | 9 | 13 | 73 |
| Clerical and sales | 7 | 16 | 8 | 9 | 18 | 17 | 25 |
| Skilled and semi-skilled | 5 | 10 | 10 | 12 | 19 | 20 | 24 |
| Unskilled and service | 13 | 18 | 11 | 14 | 18 | 13 | 13 |
| Farm operators | 1 | 4 | 4 | 6 | 14 | 19 | 52 |
| Retired | 16 | 5 | 4 | 2 | 7 | 14 | 52 |
| All others | 16 | 15 | 9 | 11 | 12 | 19 | 18 |
| All spending units | 7 | 10 | 8 | 10 | 15 | 17 | 33 |

Source: R. J. Lampman, The Share of Top-holders in National Wealth, 1922-56. Table 62, A Study by the National Bureau of Economic Research, Princeton University Press, 1962.

can be made on the basis of data obtained from the 1958 Farm Business Survey. (Table XLVI)

About 21.8 percent of the total commercial farms had a net capital value of $9451 or less, whereas the proportion of farmers owning $49,588

TABLE XLVI

DISTRIBUTION OF COMMERCIAL FARMS BY AVERAGE NET FARM CAPITAL

ASSETS AND DEBTS IN CANADA DURING 1958

| Category. Value of Farm Capital $ | % of Total Farmers | Average Capital Holding per Farm $ | Average Debt Holding per Farm $ | Net Capital per Farm $ |
|---|---|---|---|---|
| 0- 950 | .1 | 491 | 92 | 399 |
| 950- 1949 | .6 | 1550 | 43 | 1507 |
| 1950- 2949 | 1.3 | 2407 | 107 | 2300 |
| 2950- 3949 | 1.8 | 3711 | 185 | 3526 |
| 3950- 4949 | 2.7 | 5052 | 221 | 4831 |
| 4950- 7449 | 7.2 | 6881 | 439 | 6442 |
| 7450- 9949 | 8.2 | 10104 | 653 | 9451 |
| 9950- 14949 | 17.7 | 14417 | 1057 | 13360 |
| 14950- 19949 | 15.7 | 19779 | 1527 | 18452 |
| 19950- 24949 | 11.5 | 22349 | 2026 | 20323 |
| 24950- 29949 | 8.8 | 27331 | 2362 | 24969 |
| 29950- 39949 | 10.5 | 34355 | 2621 | 31734 |
| 39950- 49949 | 5.8 | 44234 | 3344 | 40890 |
| 49950- 59949 | 3.1 | 54273 | 4685 | 49588 |
| 59950- 79949 | 2.6 | 67794 | 4214 | 63588 |
| 79950- 99949 | 1.2 | 88293 | 6985 | 81308 |
| 99950-149949 | .7 | 117338 | 7683 | 109665 |
| 149950-199949 | .2 | 166838 | 16560 | 150278 |
| 199950[+] | .3 | 313890 | 21358 | 292532 |

Source: Estimation based on the data supplied by the 1958 Farm Business
Survey division, Dominion Bureau of Statistics.

or more was only 8.1 percent of the total. A survey conducted for the non-

farm families revealed that 27.2 percent of the families had no assets,

43.4 percent had in between zero and $999 and only 4.5 percent of the total

exceeded the figure of $10,000.[9]

These figures are not strictly comparable, as the data for the farm

sector gives the business assets whereas that for the non-farm sector con-

sists only of personal assets. It is suggested that equity in the assets

operated and net worth of the individual greatly influences the types of

adjustments he may pursue on his farm. Operators with limited resources may,

for example, best increase their income through off-farm employment. Those

with more adequate resources may increase the size of their farm operations

and thereby enhance their income.[10]

If such an analysis is extended to include time as an element,

capital accumulation can be shown to have an effect on the preference func-

tion of the farmer for various alternatives. For example, assuming that a

farmer, at time period $t_o$ , has certain amount of capital, and income from

farming. He also anticipates that after certain finite periods n,[11] he will

be in a position to accumulate a certain sum of capital assets which,

according to his estimation, is sufficient to give enough return to provide

a reasonable standard of living. At any time period in between $t_o$ and $t_n$

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[9]D. B. S., <u>Income, Liquid Assets and Indebtedness of Non-farm</u>
<u>Families in Canada. 1955</u>. Ref. Paper No. 80, Ottawa, 1958.

[10]L. J. Connor, W. F. Laghorne and W. B. Back, <u>op</u>. <u>cit</u>., p.17.

[11]The time period n may be the difference between the current time
period and period of retirement of the farmer.

the level of income from the farm as such does not reflect the antici-
pated amount of accumulated capital. Current farm income in these in-
stances will not be a complete picture, as the expected incomes to be
earned due to higher accumulated capital will be included in the farmer's
decision making process.

The present study does not make any empirical investigation of
many of these interrelations between farm incomes and capital investment.
In the following paragraphs, the relationships between farm capital and
levels of farm incomes in various provinces will be examined.

A rough indication of the relationship between farm capital and
farm incomes can be obtained by a cross-classification of farms in var-
ious provinces according to the amount of owned capital and the value of
product sold. The regional differences in the distribution of farms have
the following main features: (1) The extent of commercial farms to total
farms differs widely for provinces, such as, the Maritimes and British
Columbia have 45.6 percent and 54.6 percent of the total farms operating
on a commercial basis, as against 81 percent in the Prairies and 74.4
percent in Ontario. (Table XLVII) One of the reasons for the relatively
lower numbers of commercial farms in the Maritimes and British Columbia
is that a large number of farms are operated on a part-time basis. (2) The
distribution of farms according to value of product sold in 1961 also
differs among regions. Only 2.3 per cent of the total farms in the
Maritime region sold farm products valued at more than $15,000 as against
8.7 percent and 7.9 percent in Ontario and British Columbia respectively.

The relationship between farm capital and level of incomes can be

TABLE XLVII

DISTRIBUTION OF FARMS BY ECONOMIC CLASSIFICATION AND VALUE OF FARM
CAPITAL, CANADA AND REGIONS. 1961

| Characteristics | % of total farms in various categories | | | | | |
| | Mari. | Que. | Ont. | Prai. | B.C. | Canada |
|---|---|---|---|---|---|---|
| **I Commercial farms.** | | | | | | |
| Value of product sold | | | | | | |
| ≥ $15,000 | | | | | | |
|     H.C. a/ | .8 | .5 | 6.3 | 3.9 | 5.5 | 3.7 |
|     M.C. b/ | 1.5 | 1.0 | 2.4 | .5 | 2.4 | 1.2 |
|     L.C. c/ | - | - | - | - | - | - |
|     Total | 2.3 | 1.5 | 8.7 | 4.4 | 7.9 | 4.9 |
| Between $15,000 and $5,000 | | | | | | |
|     H.C. | .3 | .8 | .2 | 9.9 | 6.4 | 6.3 |
|     M.C. | 10.2 | 13.8 | 21.2 | 19.2 | 12.0 | 17.6 |
|     L:C. | .4 | .2 | 5.3 | .1 | .2 | .2 |
|     Total | 10.9 | 14.8 | 26.7 | 29.2 | 18.6 | 24.1 |
| < $5,000 | | | | | | |
|     H.C. | .4 | .4 | 1.5 | 2.0 | 2.6 | 1.2 |
|     M.C. | 20.2 | 40.8 | 35.0 | 40.6 | 24.7 | 38.0 |
|     L.C. | 11.8 | 7.2 | 2.5 | 4.9 | 1.8 | 5.1 |
|     Total | 32.4 | 48.9 | 39.0 | 47.5 | 28.1 | 44.3 |
| Total Commercial | 45.6 | 62.5 | 74.4 | 81.0 | 54.6 | 73.3 |
| **II Part-time farms** | | | | | | |
|     H.C. | - | - | .2 | - | .4 | .1 |
|     M.C. | 3.9 | 4.4 | 5.6 | 1.9 | 9.6 | 3.8 |
|     L.C. | 13.0 | 6.3 | 2.5 | 2.2 | 6.1 | 3.9 |
|     Total | 16.9 | 10.7 | 8.3 | 4.1 | 15.1 | 7.8 |
| **III Other farms** | | | | | | |
|     H.C. | 1.2 | .2 | .4 | .2 | .8 | .3 |
|     M.C. | 6.5 | 8.5 | 10.2 | 6.9 | 19.0 | 7.7 |
|     L.C. | 29.8 | 15.4 | 6.7 | 7.7 | 10.5 | 11.0 |
|     Total | 37.5 | 24.1 | 17.3 | 14.8 | 30.3 | 19.0 |
| **IV All farms** | | | | | | |
|     H.C. | 2.6 | 2.0 | 13.7 | 16.1 | 15.9 | 11.6 |
|     M.C. | 42.2 | 78.8 | 75.4 | 69.0 | 68.5 | 68.3 |
|     L.C. | 55.2 | 29.2 | 11.9 | 14.9 | 15.6 | 20.1 |

a/High Capital, Farms owning capital more than $49,950.
b/Medium Capital, Farms owning capital between $9,950 and $49,949.
c/Low Capital, Farms owning capital less than $9,949.

Source: Estimated from the 1961 census, Volume V.

derived from the fact that the larger capital valued farms are concentrated in the higher income bracket in all regions. The Prairies have the highest proportion of commercial farms (15.8 percent of total) with large amount of capital, whereas the proportion of such farms in Maritimes and Quebec is only 1.5 percent and 1.7 percent of the total, respectively.

The distribution of farms by income groups and value of farm capital is only a crude indicator of the relationship between these two variables. A precise relationship, however, can be obtained by analyzing the income of the farms by various capital investment categories. In Table XLVIII the net income per farm on farms of various capital investments is presented. On the farms where farm capital investment was only $2949 or less, the net income was only $79 per year. As farm capital value increased, the net income of the farms also increased in a certain fashion.

The exact relationship between the two items as obtained on the basis of this data is:

$$\hat{Y} = 174 + 0.04189 ** X$$
$$(0.000912)$$
$$S = 299.13 \qquad r^2 = 0.996 **$$

(** Significant on 1% level of significance.)

here, Y = Net income per farm in dollars, and

X = Value of farm capital in dollars.

The equation indicates that with a one dollar increase in the farm capital, the net income of the farm will increase by about 4.2 cents. The significant 'b' value and a very high $r^2$ support the validity of this relationship on statistical grounds.

TABLE XLVIII

NET INCOME PER FARM ON THE COMMERCIAL FARMS CLASSIFIED ACCORDING

TO SIZE OF CAPITAL INVESTMENT, CANADA, 1958

| Category<br><br>Dollars | No. of<br>Farms<br>000, # | % of<br>Total<br>Farms | Gross<br>Income<br>Mill. | Net<br>Income<br>$ | Net Income<br>per Farm<br>$ |
|---|---|---|---|---|---|
| 0-   2949 | 9.6 | 2.0 | 5.3 | .7 | 79 |
| 2950-   4949 | 21.9 | 4.5 | 20.4 | 2.9 | 133 |
| 4950-   9949 | 74.4 | 15.4 | 129.1 | 23.9 | 322 |
| 9950- 19949 | 161.7 | 33.4 | 558.2 | 116.7 | 722 |
| 19950- 29949 | 98.0 | 20.3 | 560.0 | 127.8 | 1304 |
| 29950- 39949 | 50.8 | 10.5 | 582.4 | 91.5 | 1802 |
| 39950- 49949 | 28.1 | 5.8 | 269.2 | 66.2 | 2353 |
| 49950- 59949 | 15.0 | 3.1 | 170.4 | 40.8 | 2715 |
| 59950- 79949 | 12.7 | 2.6 | 191.1 | 53.1 | 4176 |
| 79950- 99949 | 5.8 | 1.2 | 129.7 | 20.6 | 3579 |
| 99950-149949 | 3.3 | .7 | 78.5 | 15.2 | 4549 |
| 149950-199949<br>and over | 2.3 | .5 | 84.5 | 24.1 | 10349 |

Source: Same as Table XLIII.

Thus, the analysis clearly substantiates the point that farm incomes are affected by the capital investment. Given that a wide disparity in farm incomes for various provinces exists and that farm income is related with capital investment on the farm, it follows that the provinces will have a wide range of farm capital investment. The data in Table XLIX examines the pattern of capital investment during the period 1941-61 in various provinces.

TABLE XLIX

SELECTED INDICATORS OF CAPITAL INVESTM

1941-61.

| Characteristic | | MARITIMES | | | QUEBEC | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1941 | 1951 | 1961 | 1941 | 1951 | 1961 | 1941 |
| Capital per farm | $ | 2800 | 6600 | 12000 | 4800 | 10400 | 16900 | 6700 |
| Capital per improved acre | $ | 77 | 172 | 214 | 82 | 158 | 207 | 89 |
| Capital per worker | $ | 2248 | 6828 | 7002 | 2908 | 6071 | 11419 | 4412 |
| Net income/Cap. ratio | $ | .13 | .14 | .13 | .12 | .15 | .12 | .09 |
| Per farm value of mach. and equipment | $ | 358 | 1140 | 2807 | 551 | 1578 | 3145 | 844 |

Source:  Same as that for Table XLVII.

The regional pattern of capital investment exhibited some character-
istics common to the income pattern.  For example, capital and incomes per
farm in the Maritimes were the lowest.  Farms in the Prairies and British
Columbia had relatively higher capital investment.  Over a period of time,
the capital per farm has been increasing in all regions, but the rate of
growth was higher in the case of British Columbia and the Prairies.  The
increase in capital in 1961 as compared to 1941 was 477 percent in
British Columbia, 385 percent in the Prairies, 359 percent in Ontario,
328 percent in the Maritimes, and 251 percent in Quebec.  In 1961, the
average British Columbia farm had a capital value of $32,900 as against
only $12,000 on a Maritime farm.  When the capital resources were compar-
ed in terms of fixed resources, such as land or labor, the tendency re-
mained the same in most provinces.  Capital per improved acre increased
during this period of time, but in some provinces (the Prairies) the cap-
ital per improved acre was much less than in Ontario or British Columbia.
This is the result of larger improved acreage on farms in the Prairies.

Capital per worker paralleled the trend of per farm capital in-
vestment, except in the case of the Maritimes, where the growth in per
worker capital was not as pronounced.  It is an indirect indication that
during the period 1941-61, the movement of labor from the Maritimes farms
has not been fast enough to improve the overall productivity of workers.
Thus from the above analysis, it can be concluded that regional income
differences to a considerable extent can be explained through differences
in the level of farm capital investment.

The level of capital investment, as indicated earlier, also

changes the value system of farmers. The present study, since it was conducted at macro-level, could not attempt to measure this effect. However, a similar study conducted on occupational preferences of farmers at Iowa[12] revealed that farmers had a very strong attachment to farming; and in many cases overestimated the amount needed in the next best alternative occupation. The question asked in this study was: By what percent (as compared with 1949) would income have to be higher in the 'next best' occupation before you would be willing to transfer? About one-third of the farmers interviewed indicated that no amount would be large enough to induce them to change to another occupation. Replies from others ranged from zero to 100 percent increase in income, with an average of 47 percent.[13] It is not, however, definite on the basis of these figures the extent to which these preferences affect the income levels in farming. Nevertheless, it does indicate that accumulated capital may act as a barrier to resource mobility, and thereby create regional disparity in farm incomes. Any policy measure which attempts to even out the regional income differences must take this factor into account.

D. Intra-agricultural Income Disparity Versus Inter-industrial Income
Disparity:- The discussion so far has centered around two major problems of the agricultural industry: The relative incomes of farm labor as

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[12] E. O. Heady, W. B. Back, & G. A. Peterson, Interdependence Between the Farm Business and the Farm Household with Implications on Economic Efficiency, Agri. Expt. Station, Iowa State College, Res. Bull. 398, June 1953, p.421.

[13] Ibid., p.421.

against that of non-farm labor, the differences in incomes within the agricultural industry. In each case it was concluded that the problem was serious. However, from the discussion of these problems it was not clear which, from the policy formulation point of view, should be given priority. In order to provide a proper basis for agricultural policies relating to farm incomes, it seemed necessary that a comparison of these two problems should be made, to identify the more serious one. It was then hypothesized that intra-agricultural income disparity is greater than disparity in inter-industrial incomes.

This hypothesis was tested by the following procedure: To the annual average incomes of different industries for Canada and of the different provinces for agriculture, two separate analyses of variance tables were calculated. This technique helped in separating the variation due to industries and that due to provinces from the total variation in two types of incomes. A direct comparison of these mean sums of squares of variation, by using 'F' as a variance ratio test, was not possible, because the assumption of common variance was not fulfilled by the data.[14] In order to remove this bias, the mean squares of variation due to industry and those due to provinces were taken as separate estimates of $S^2$. In both these cases the coefficient of variation was

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[14] The violation of this assumption was made due to the fact that the data on the incomes in various industries has its population the income in total economy. Whereas the population for agricultural incomes, in various provinces, was the incomes in agricultural industry only. As the latter is only a part of the former and in no case it includes the same characteristics, the concept of a common variance cannot be used.

calculated as $\frac{100.\ S}{\overline{X}}$. As these two coefficients of variation were direct-
ly comparable they were used to test the hypothesis.

This procedure was adopted for the total labor income as well as
for the income of self-employed workers. This analysis was made for each
of the three periods (Pre-depression, Depression and Post-depression)
for the total labor income. The results appear in the Table L. This in-
dicates that the hypothesis that disparity in incomes within agriculture
is greater than the inter-industrial income disparity is supported for
each time period. During the pre-depression period the coefficient of
industrial income disparity was 79.3 percent as against 85.5 percent in
the agricultural incomes. During the post-depression period the indus-
trial variation in incomes rose to 160.4 percent whereas that in the
agricultural incomes rose to 186.2 percent. The tendency of the variabil-
ity in agricultural incomes to exceed that in inter-industrial incomes
furnishes sufficient evidence to support the hypothesis.

The same results were obtained for the incomes of self-employed
workers which were analyzed for the post-depression period only. In
this case, the variation in industrial incomes was 155.2 percent whereas
that in the agricultural incomes was 335 percent of the mean. (Table LI)
One thing seems apparent, that the variation in the farm operators' in-
come is the main contributing source to the variation in the total labor
income.

The support for this hypothesis provides a basis for directing
agricultural policy in Canada. As intra-agricultural disparity in in-
comes is relatively serious, more emphasis should now be laid on

TABLE L

COEFFICIENT OF VARIATION IN INCOMES BY DIFFERENT INDUSTRIES

AND AGRICULTURAL INCOMES BY PROVINCES FOR TOTAL LABOR

IN CANADA.

| Period | Industrial | | | Provincial Agri. | | | |
| | M.S.S.[a] | Mean | C.V.[b] | M.S.S. | Mean | C.V. | Remarks. |
|---|---|---|---|---|---|---|---|
| Pre-Depr. (1926-29) | 1,113,041 | 1331 | 79.3 | 50239 | 262 | 85.5 | Ho Acc. |
| Depression (1930-40) | 4,171,565 | 1071 | 190.7 | 38602 | 97 | 202.5 | Ho Acc. |
| Post-Depr. (1941-61 | 22,472,256 | 2955 | 160.4 | 2,209,253 | 798 | 186.2 | Ho Acc. |

[a] Mean sums of squares of variation.

[b] Coefficients of variation.

Source:  Estimation based on data presented in Tables XVI, and XXIV.

TABLE LI

SELF-EMPLOYED WORKERS' COEFFICIENT OF VARIATION IN

INCOMES FOR INDUSTRIES AND PROVINCES FOR CANADA

DURING THE POST-DEPRESSION (1941-61) PERIOD.

| Items | Farm regional income | Industrial incomes |
|---|---|---|
| Mean sums of squares | 11,587,620.0 | 19,248,592.0 |
| Mean income $ | 1,016 | 2,827 |
| Coefficient of variation (%) | 335 | 155.2 |
| Remark: $H_o$ accepted. | | |

Source: Estimation based on data presented in Tables XIX, and XXV.

programs which tend to equalize the regional differences in incomes. In turn, such programs will not only place Canadian agriculture on a much better standard in all provinces, but at the same time the relative position of the farm sector compared to the non-farm sector would also tend to be improved.

## II. INTERTEMPORAL INSTABILITY OF FARM INCOMES.

Among the problems of farm incomes mentioned above, the last one is their variability over time. This characteristic was also revealed by chart 5. In some provinces, the variability of incomes was very

severe. The Prairie provinces have suffered from this problem. As Gilson[15] pointed out,

> "...the basic problem in the Prairies in the long run
> is not of perennial low yields; nor is it a matter of
> excessive yields and chronic surpluses. Rather it is
> the unpredictable and disconcerting manner in which
> low yields alternate with high yields."

Because of a very strong relation between good and bad crop years and higher and lower incomes, farm incomes in the Prairies can easily be regarded as suffering from instability. Chart number 5 has also shown that the farm income problem is not a single problem. Farm incomes in some areas are very low, in some other areas they are higher than the factory workers in a few years, but fluctuate very much from year to year.

A numerical estimation of the instability in different types of incomes is shown in Tables LII and LIII. The whole discussion of unstable nature of farm incomes has been divided into two broad headings: Instability of farm incomes as compared with that in non-farm incomes and the regional pattern of instability in farm incomes.

Instability in the following discussion has been denoted as variability in incomes as estimated by four measures: Range, average deviation, coefficient of variation and the relative mean of first differences.[16] These estimations were made by dividing the total time

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[15] J. C. Gilson, *Instability in Agriculture and crop insurance*. Paper presented to the farm conference week, University of Manitoba, March 1962, mimeo, p.2.

[16] These measures can be defined as:
      Range: = difference between minimum and maximum items in
            a series.

period into the same three sub-periods.

A. <u>Farm and Non-farm Income Variability</u>:- In comparison to farm incomes, non-farm incomes can be regarded as more stable as shown by Table LII. Income in this table refers to that of total workers per NME in both sectors. For the total period the figures indicate that except for the range, the values of the other three measures of variability were higher for the farm sector. The coefficient of variation for farm income was 78.2 percent in contrast to only 49.9 percent for the non-farm sector. The variability in farm incomes was lowest in pre-depression years. Non-farm incomes during these three periods have shown an increasing variability as measured by the coefficient of variation.

B. <u>Regional Pattern of Instability in Farm Incomes</u>:- The regional pattern of variability in farm incomes is discussed under two heads: Variability in the total labor income and variability in the farm operators' incomes.

In general, it can be stated that the highest variability in total labor income was observed in the case of the Prairie provinces, followed by Quebec, British Columbia, Ontario and the Maritime provinces. This

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Average Deviations $= \frac{\sum |d|}{N}$ where $|d|$ is the deviation from a measure of central tendency, the mean, signs ignored.

Coefficient of variation $= \frac{S}{\bar{X}} \cdot 100$

where $S = \sqrt{\frac{\sum (x^2)}{N}} = \sqrt{\frac{\sum (X-\bar{X})^2}{N}}$

Relative mean of 1st differences $= \sum \frac{(X_t - X_t-1)}{X_t} \Big/ N$

$t = 1, 2, \text{---} N$

TABLE LII

VARIABILITY OF FARM AND NON-FARM INCOMES FOR TOTAL LABOR IN

CANADA 1926-61

| Particulars | Unit | Pre-depr. | | Depr. | | Post-depr. | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | | Farm | Non-Farm | Farm | Non-Farm | Farm | Non-Farm | Farm | Non-Farm |
| Range | $ | 176 | 97 | 321 | 439 | 1378 | 3207 | 1719 | 3795 |
| Aver. dev. | $ | 65 | 32 | 245 | 83 | 295 | 164 | 165 | 127 |
| Relative mean of first differences | % | 20 | 2 | 59 | 5 | 30 | 6 | 38 | 5 |
| Coeff. of Var. | % | 29.9 | 2.9 | 91.3 | 10.6 | 35.4 | 32.3 | 78.2 | 49.9 |
| Median | $ | 308 | 1522 | 83 | 1325 | 894 | 3157 | 655 | 2039 |

Source:  Estimation based on the data obtained for Table XVI.

tendency is exhibited during the period 1926-61 as measured by the co-

efficient of variation in Table LIII.  All other measures of variability

during this period satisfy this trend.  The variability of incomes in

Saskatchewan is the highest, being about 104.5 per cent of its mean in-

come, and the other two Prairie provinces, i.e., Manitoba and Alberta,

follow it, having 83.4 per cent and 83.8 per cent coefficient of variation

respectively.  The lowest variability during this period was in the prov-

ince of New Brunswick which was only 28.4 per cent of its mean. (Table LIII)

Quite different results were obtained when the analysis was made

separately for various sub-periods.  However, the final conclusion even

## TABLE LIII

### PROVINCIAL VARIABILITY IN THE TOTAL LABOR'S FARM INCOME DURING

### PRE-DEPRESSION, DEPRESSION AND POST-DEPRESSION YEARS

| Province | Pre-Depr. A.D.[a] | Pre-Depr. C.V.[b] | Depression A.D. | Depression C.V. | Post-Depression Range | Post-Depression A.D. | Post-Depression Mean of I Diff. | Post-Depression C.V. | Post-Depression Med. | Range | A.D. | Total Period Mean of I Diff. | Total Period C.V. | Median |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ | % | $ | % | $ | $ | % | % | $ | $ | % | % | % | $ |
| Pr. Ed. Is. | 27.3 | 8.9 | 24.3 | 78.4 | 557 | 126.0 | 29.8 | 40.9 | 425 | 902 | 86.2 | 44.2 | 75.5 | 219 |
| Nova Scotia | 10.3 | 4.6 | 39.6 | 31.7 | 248 | 50.8 | 15.8 | 16.4 | 396 | 392 | 42.6 | 18.7 | 41.4 | 202 |
| New Brunswick | 30.3 | 24.0 | 28.5 | 54.7 | 435 | 89.7 | 20.8 | 22.3 | 438 | 642 | 63.5 | 26.4 | 28.4 | 224 |
| Quebec | 6.0 | 5.2 | 33.2 | 91.9 | 665 | 87.9 | 15.7 | 32.8 | 737 | 963 | 64.6 | 33.2 | 77.7 | 404 |
| Ontario | 16.3 | 5.9 | 51.8 | 63.8 | 1289 | 167.1 | 20.8 | 31.9 | 1017 | 1650 | 285.0 | 73.9 | 56.7 | 583 |
| Manitoba | 266.6 | 70.6 | 158.6 | 199.1 | 1152 | 290.8 | 39.3 | 38.9 | 866 | 1630 | 240.4 | 111.8 | 83.4 | 484 |
| Saskatchewan | 279.3 | 53.3 | 140.4 | 168.6 | 2832 | 605.4 | 87.9 | 57.7 | 1139 | 3240 | 416.5 | 120.0 | 104.5 | 589 |
| Alberta | 213.6 | 44.1 | 110.5 | 174.6 | 2026 | 347.0 | 39.8 | 44.6 | 1107 | 2397 | 254.0 | 257.3 | 83.8 | 599 |
| Bri. Columbia | 47.0 | 22.1 | 52.0 | 42.7 | 1071 | 106.0 | 13.6 | 29.5 | 967 | 1410 | 84.0 | 17.3 | 67.5 | 592 |

[a] Average Deviation.

[b] Coefficient of Variation.

Source: Estimation based on the date presented in Table XXIII.

on this basis was not affected significantly. During the pre-depression

years variability in the incomes was not a large magnitude mainly due to

the then applying higher absolute incomes. However, during the depres-

sion years, even when the average deviation was small, the low mean in-

come caused the coefficient of variation to be very high. Only during

the post-depression years can a meaningful comparison of variability of

income among the various provinces be obtained. During this period, all

the measures agreed with the conclusion derived on the basis of the

analysis of the total period. Saskatchewan in this case too had the

highest variability in incomes, which was about 57.7 percent of the mean.

The coefficient of variation further indicated that Prince Edward Island

had the next most variable incomes, and according to the relative mean

of first differences, Manitoba took the third position. On the stability

side, based on coefficient of variation, incomes in Nova Scotia during

this period were the leading ones, but according to relative means of

first differences, those in British Columbia were the most stable. More-

over, Nova Scotia, Quebec and British Columbia were the only three prov-

inces which had relatively lower variable incomes.

A similar conclusion was derived by analyzing the variability in

operators' incomes in the various provinces. In this case data for the

depression years were removed from the analysis because it did not pro-

vide a plausible view of relative variation.[17] During the last thirty

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[17]During many of the depression years the income was either
negative or comparatively very small. Because of lower mean income,
coefficient of variation was very high.

years,[18] highly unstable incomes were received by farm operators in Saskatchewan, Alberta and Prince Edward Island. High relative variability in the incomes of Prince Edward Island farm operators were a result of their lower levels. The coefficients of variation for these provinces were 115.6 percent, 100.4 percent and 380.6 percent respectively. (Table LIV) The farm operators in British Columbia, Ontario and Nova Scotia had relatively stable incomes during this period.

Thus, farm incomes in Canada as a whole as well as for some of the provinces have been very unstable. The main causes for instability in these incomes can be classified into two general groups:

1. Those originating in changes in demand, and

2. Those arising out of agricultural production.

Most of the variation in the incomes originate from the latter group as the agricultural production is subject to many risks and uncertainties. The resultant output, which is not usually identical with the anticipated one, will have a proportionately greater or lesser effect on market price, as the demand of the agricultural products tends to be inelastic in nature. At the same time, relative stability of costs of production has the effect of causing wide fluctuations in the net farm incomes.

C. Variability in Incomes and Income Comparison for Regions:- One of the important features of Tables LIII and LIV is that higher incomes were

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[18]The total period in this case relates to years from 1931 to 1961.

## TABLE LIV

## VARIABILITY IN THE FARM OPERATORS' INCOMES BY PROVINCES DURING

## POST-DEPRESSION AND TOTAL PERIOD.

| Province | Range $ | A.D.[a] $ | Mean of I Diff. % | C.V.[b] % | Median $ | Range $ | A.D.[a] $ | Mean of I Diff. % | C.V.[b] % | Median $ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Post Depression | | | | | | | |
| P.E.I. | 1106 | 232.5 | 88.2 | 315.8 | 356 | 1326 | 181.5 | 109.6 | 380.6 | 212 |
| N.S. | 499 | 105.8 | 66.8 | 57.6 | 276 | 663 | 98.6 | 69.0 | 74.1 | 189 |
| N.B. | 985 | 223.7 | 43.0 | 46.9 | 544 | 1415 | 178.5 | 80.5 | 83.4 | 366 |
| QUE. | 679 | 117.7 | 26.4 | 37.0 | 582 | 1126 | 94.2 | 42.5 | 92.2 | 382 |
| ONT. | 1348 | 288.3 | 33.5 | 32.9 | 1096 | 2054 | 236.0 | 54.2 | 77.3 | 881 |
| MAN. | 2358 | 584.8 | 71.3 | 50.9 | 1275 | 3173 | 471.9 | 113.1 | 99.5 | 865 |
| SASK. | 6323 | 1147.5 | 149.2 | 62.3 | 2597 | 7324 | 875.9 | 193.8 | 115.6 | 1702 |
| ALTA. | 3758 | 744.3 | 72.1 | 54.3 | 1691 | 4530 | 581.2 | 76.6 | 100.4 | 1142 |
| B.C. | 626 | 142.1 | 20.4 | 29.9 | 799 | 1298 | 118.4 | 31.2 | 56.9 | 702 |

[a] Average Deviation.

[b] Coefficient of Variation.

Source: Estimation based on data presented in Table XXV.

invariably more unstable than lower incomes, not only absolutely but also

relatively. This can be shown by cross-classifying the provinces accord-

ing to the level of income and the magnitude of its relative variability

as done in Table LV. In the Prairie provinces and Ontario though the in-

comes were comparatively higher, they fluctuated highly from year to year.

On the other hand, low and fairly stable incomes characterized the

Maritime provinces.

This positive correlation between the levels of income and degree

of variability poses an important problem in the comparison of incomes

for various provinces. This is whether incomes differing in their degree

of variability are comparable or not. It does not seem logical, however,

that from the standpoint of the individual farmer, the degree of varia-

bility associated with incomes will not be of any concern to him, in his

business planning and decision making process. Rather it is a matter of

choice between the two situations: A higher income with high variability,

as against a low but stable income. Too frequently in regional policies

no explicit recognition is given to this degree of variability in incomes

received in various provinces. Consequently, it can be suspected that

regional policy formulation has not had any orientation in this aspect.

In order to make incomes comparable for degree of variability a

more detailed investigation of the effect of variability on income re-

ceivers is required. One of the economic effects of higher variability

in incomes is that it imparts a noticeable effect on the expectations

and business planning of an enterprise. The expected income of a farmer

can serve as a good indicator of his preference for the incomes under two

TABLE LV

RELATIONSHIP BETWEEN THE LEVEL OF INCOME AND VARIABILITY

FOR TOTAL LABOR AND OPERATOR, CANADA, BY ITS PROVINCES,

DURING POST-DEPRESSION YEARS:

| Coefficient of Variation between | Level of income between | | |
|---|---|---|---|
| | Below $ 500 | $ 501 - $ 1000 | Over $ 1000 |
| **Total labor income** | | | |
| Below 30% | Nova Scotia<br>New Bruns. | X | X |
| Between 31% and 60% | Pri. Ed. Is. | Quebec<br>Manitoba<br>British Col. | Ontario |
| Over 60% | X | X | Saskatchewan<br>Alberta |
| **Operators' income** | | | |
| Below 30% | X | British Col. | X |
| Between 31% and 60% | Nova Scotia | New Bruns.<br>Quebec | Ontario |
| Over 60% | Pri. Ed. Is. | X | Manitoba<br>Saskatchewan<br>Alberta |

Source: Derived from Tables LIII and LIV.

situations. The expected income can be defined as the discounted value of income which an entrepreneur anticipates for the next year. The expectation in this case should be based on the level of income by taking the variability into consideration:

$$\text{Expected income in a particular year} = \frac{\text{Mean Income } (\bar{X})}{(1 + \text{Coefficient of Variability})}$$

Two different coefficients of variability were selected for discounting: The coefficient of variation and the relative mean of first differences. The discounted values of average incomes for various provinces calculated on the basis of these two discounting ratios are shown in Table LVI. The figures for the discounted value of income showed that the disparity among the level of income in different provinces was much less than that for the current average incomes during that period. Along with it, many provinces have also undergone a change in their ranking. During the post-depression period, the difference in the average current incomes for the provinces was $893 (from $1271 to $378) which was reduced to $491 (from $806 to $325) when calculated in terms of expected incomes. Furthermore, in terms of discounted values, the income in the Prairies came very close to that in the Maritime provinces. For the total period, the disparity of incomes within provinces was reduced to $228 from $500 which is a little more than a fifty percent reduction. It seems plausible that in terms of expected incomes, the Maritime provinces have not been at any disadvantage in comparison to incomes in the Prairies.

TABLE LVI

EXPECTED VALUE OF FARM TOTAL LABOR INCOME BY DIFFERENT PROVINCES

FOR POST-DEPRESSION AND TOTAL PERIOD, CANADA.

| Provinces | Post-depression period. | | | | | Total period | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1. | 2.<br>$ | 3. | 4.<br>$ | 5. | 1. | 2.<br>$ | 3. | 4.<br>$ | 5. |
| P. E. I. | 8 | 317 | 9 | 344 | 8 | 8 | 171 | 9 | 209 | 8 |
| N.S. | 9 | 325 | 8 | 326 | 9 | 9 | 204 | 8 | 243 | 7 |
| N.B. | 7 | 370 | 7 | 375 | 7 | 7 | 241 | 7 | 245 | 6 |
| QUE. | 6 | 520 | 6 | 597 | 6 | 6 | 249 | 6 | 332 | 4 |
| ONT. | 3 | 761 | 4 | 831 | 2 | 4 | 381 | 4 | 423 | 2 |
| MAN. | 5 | 618 | 5 | 617 | 5 | 5 | 299 | 5 | 259 | 5 |
| SASK. | 1 | 806 | 1 | 676 | 4 | 1 | 386 | 3 | 358 | 3 |
| ALTA. | 2 | 776 | 2 | 802 | 3 | 2 | 397 | 2 | 204 | 9 |
| B.C. | 4 | 767 | 3 | 875 | 1 | 3 | 399 | 1 | 570 | 1 |

1. Rank in current income.

2. Expected Income by coefficient of variation.

3. Rank in Column 2.

4. Expected Income by Mean of 1st differences.

5. Rank in Column 4.

Source: Estimation based on data presented in Table LIII.

III. CONCLUSION.

The three basic farm income problems are : Low levels of relative incomes, disparity within agriculture, and instability over time. These three problems are serious, but relatively speaking of the first two, the

intra-agricultural income disparity is more severe than the inter-industrial income differentials. At the same time, it has also been indicated that income from farming sources is only a partial indicator of the overall situation, since the low farm incomes are supplemented to a greater extent by incomes from non-farming sources than are higher farm incomes. While investigating the third problem, it was found that higher incomes were associated with the relatively higher variability. In order to make these incomes comparable with respect to the degree of variability in incomes for various provinces, a calculation of expected income was made which reduced the size of the regional income differentials remarkably. A part of the regional differentials in incomes was also explained by the differences in the value of farm capital.

## CHAPTER VIII

## INCOME COMPARISON AND RELATIVE WELFARE OF FARM PEOPLE

In the discussion of income generation and its determination in an economic system it was indicated that the incomes received by the owners of factors of production become a means of purchasing power in their hands as consumers. Although generation of income and its distribution to consumers are virtually the same, the latter has certain other connotations for example, from the standpoint of a consumer, his income might be different from the income received from his earnings from use of his owned factors of production; it might include the addition of government transfer payments, gifts and inheritances received or might be reduced by taxes paid, gifts made to others.

When incomes differ with respect to their source and nature, their comparison becomes very difficult. In the case of farm and non-farm incomes, to determine and equivalent level of income for a particular sector is not an easy process because it is not a simple question of the equivalent dollar value of two economic pursuits, as two types of living are not strictly cash-cost ones. A farmer's unit of decision making is a mixture of a firm and a home, whereas an urban residence is often just a home. In the farm sector various monetary and non-monetary forces may interact, making an income comparison very complex. Gilson remarked that:

> "The forces of market have apparently failed to transfer families from their sub-marginal farms to other occupations with higher monetary rewards. For many complex reasons people cling to farms that have little more to offer than a way of life."[1]

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[1]J. C. Gilson, Nature and Implications of sub-marginal farms, op. cit. p. 19.

These complex reasons require a separate investigation. All such
factors which affect an individual (as a consuming unit) are studied
under the subject of welfare economics. In this chapter farm and non-
farm income are compared so as to evaluate the relative welfare of
people in these sectors. Since welfare is not only affected by economic
factors, but also by non-economic ones, the chapter includes an analy-
sis of both types of factors. However, the analysis of non-economic
factors is not carried out to any intensity, and as such the chapter
mostly concentrates on economic factors affecting the welfare of a
group of individuals.

## I. COMPONENTS OF WELFARE

The phrases 'welfare of the community' and the 'well-being of an
individual' are very frequently used remarks about policy formulation.
In all such statements well-being can be substituted by the word
'happiness'. When one indicates that a particular policy is aimed
at increasing the welfare of certain group of individuals, what
he actually points out is that his interest mainly lies in the
economic causes of happiness. According to Little [2] the economic
causes of changes in the happiness of an individual are taken to
be changes in items and services which can be exchanged for money;
together with changes in the amount and kind of work which the in-
individual does.

The demarcation of the various categories of forces acting

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[2] I.M.D. Little, A Critique of Welfare Economics,(London :
Oxford Univ. Press., II edition 1960)p.6.

on the individual which determine his welfare was made by Pigou. [3]
According to him, welfare is a field of very wide range. A general
investigation of all the groups of causes by which welfare thus con-
ceived may be affected, would constitute a task so enormous and
complicated as to be quite impracticable. Pigou divided the whole
field of social welfare into two components: One that can be brought
directly or indirectly into relation with the measuring rod of money
and the other which cannot be. The first component of social welfare
has been termed economic welfare, and the second, non-economic welfare.

The factors which determine the welfare of an individual or a
group of individuals can easily be divided into two; economic causes
and non-economic causes. Incomes earned by the group of individuals,
and other material items consumed constitute the first group. These
are the factors on which major stress will be laid in this chapter.
Non-economic factors, such as preference for occupations, enjoyment of
physical conditions and sociological differences, cannot be completely
disregarded in a study of welfare. However, these factors due to
their immeasurability have been largely excluded from the following
comparison, although some indications of the influence are made.

Measurement of welfare, through incomes received by individuals
is greatly influenced by the accounting of incomes. It seems that
accoding to the present accounting technique used by the Dominion Bureau

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[3] A.C. Pigou, The Economics of Welfare, New York; The Macmillan
Company, 1960 p. 10.

of Statistics in Canada, the reported economic welfare of individuals will
be under-rated to the extent to which people perform non-economic pursuits,
such as education by parents, and work done by housewives. Furthermore,
during the time when a country is building up its capital, a part of
production goes towards this wealth, and, if welfare is measured solely
on the basis of income earned, the total welfare of the individual is
understated. Such implications can be applicable to certain sectors of
the economy, such as farming, where the majority of farmers aim to
accumulate a certain equity of farm business by curtailing present
consumption. Under such instances, income estimates for the farm sectors
will be biased downwards.

Furthermore, it is argued that, for incomes in the farm sector,
income comparisons do not show capital improvements to farm property by
the use of family labor and farm materials, and to this extent farm incomes
are underestimated. But, at the same time, incomes also ignore depletion
of resources such as fertility depletion, and erosion, and to this
extent farm incomes are overestimated. Perhaps these two limitations of
farm income estimates may tend to offset each other.

In a comparison of farm and non-farm incomes to indicate the relative
welfare of people, it is logical to say that the relationship between
the two incomes may lie within certain limits depending on how the various
factors which affect the welfare of a group of individuals are weighted.
Value judgments of the group may play a very important role under such
instances.

An evaluation of the relationship between farm and non farm incomes in this study was carried out by hypothesizing that the relationship between these two incomes has been close during the post-depression period; if non-income considerations are included in the analysis. This hypothesis is tested in the discussion below by investigating factors of an economic nature including those directly affecting levels of economic welfare, and those indirectly affecting economic welfare, and factors of non-economic nature.

## II. DISPARITY BETWEEN FARM AND NON-FARM INCOMES

The average differential between farm and non-farm worker's income on a comparable basis was estimated in Chapter VI, and it was there concluded that farm incomes, according to the criteria used, were very low, relative to those in the non-farm sector. But later on in chapter VII it was also shown that lower farm incomes in certain areas, are highly supplemented with incomes from other sources. Thus, the income concept including only the income from Farms as a measure of welfare is invalid, for the following reasons:

> (a) Net farm income data excludes the income of farm
> operators from sources other than farming, which
> for certain regions is a major source of income.
>
> (b) Earnings of farm family from non-farm sources are
> also ignored.
>
> (c) Wages paid to farm hired laborers should be added
> back to farm incomes, as the farm population in-
> cludeds these workers.

A. Total disposable personal income of farm people:- In order to remove these limitations, separate estimates of total disposable personal income were made. These estimates included the income of farm people from non-farm employment of the operators and family members, payments and/or transfer of money from government, and other investment incomes over and above that from farming.

Total income for farmers was estimated only for the period since 1941 because before then there were no statistical data on non-farm employment of farm workers. The data clearly indicate that income from farm sources is becoming less and less important. During 1941-45 net income from farming contributed 80.3 per cent of the total income. Its contribution was reduced to 59.3 per cent of the total income in 1961. (Table LVII). The relative contribution of income from non-farm employment to the total has increased during this period. It was 10.8 per cent during 1941-45, and increased to 27.5 per cent in 1961.

Thus, the conclusion reached in Chapter VII, that comparison of net income from farming and income in non-farming industries gives only a partial picture, was valid, as the importance of net income from farming to total income of farmers is decreasing.

B. Under-estimation of Farm Income due to Valuation of Kind Incomes:- Even after the addition of incomes from non-farm sources to farm incomes some considerable inaccuracies in the estimates of comparative farm incomes may be observed. Such inaccuracies may arise, for example, due to difference in the farm and retail value of farm products which are produced on the

TABLE LVII

DISPOSABLE INCOME OF FARM POPULATION BY SOURCES IN CANADA 1926-61

| Period. | Net income from farm. exc. supp. payments. | Income from non-farm empl.-oyment | Govt. transfer payments. | Investment incomes. | Other incomes | Total income of farmers. | Income of paid laborers | Personal Income tax. | Total disposable income of farm people. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | (MILLION $) | | | | |
| 1926-30 | 534 | – | – | – | – | – | – | – | – |
| 1931-35 | 163 | – | – | – | – | – | – | – | – |
| 1936-40 | 361 | – | – | – | – | – | – | – | – |
| 1941-45 | 836 | 113 | 48 | 41 | 3 | 1041 | 101 | 31 | 1111 |
| 1946-50 | 1263 | 200 | 98 | 35 | 3 | 1599 | 133 | 72 | 1660 |
| 1951-55 | 1753 | 335 | 128 | 38 | 3 | 2257 | 166 | 91 | 2332 |
| 1956-60 | 1244 | 429 | 170 | 48 | 3 | 1894 | 181 | 89 | 1986 |
| 1961 | 1039 | 483 | 173 | 57 | 3 | 1755 | 198 | 27 | 1926 |

% of total farmers' income.

| Period | Net income from farm. exc. supp. payments. | Income from non-farm empl.-oyment | Govt. transfer payments. | Investment incomes. | Other incomes | Total income of farmers. |
|---|---|---|---|---|---|---|
| 1941-45 | 80.3 | 10.8 | 4.7 | 3.9 | .3 | 100.0 |
| 1946-50 | 79.0 | 12.5 | 6.1 | 2.2 | .2 | 100.0 |
| 1951-55 | 77.7 | 14.8 | 5.7 | 1.7 | .1 | 100.0 |
| 1956-60 | 65.6 | 22.8 | 8.9 | 2.5 | .2 | 100.0 |
| 1961 | 59.3 | 27.5 | 9.8 | 3.2 | .2 | 100.0 |

Source: Estimation based on data obtained from Agricultural Division, D.B.S., Publications of Department of National Health and Welfare, the 1958 Farm Business Survey, and 1941, 1951, 1961 census. For details of the method adopted, see p. 80, Chapter V.

farm and consumed by the farm families. It was argued by Ojala [4] that the " ... incomes of farming community have been underestimated to the extent that farm families consume home products which the community must buy at retail prices." In order to make a valid comparison, it is necessary that the difference between farm value and retail value of farm perquisites as included in the farm incomes in kind should be added.

The magnitude of the under-estimation because of retail and farm price differentials, varied between 140.5 per cent of total net income during the period 1931-35 and 22.5 per cent during 1946-50. In no year was this difference less than a fifth of the total net farm income of the year. (Table LVIII). During the depression years and in 1961, this proportion was very high, mainly because of two reasons: first, the net farm incomes during these years were very low, and second, during the depression years the prices of farm products were comparatively lower than those at the retail level, causing a wide differential in valuation.

The average differential between prices at the two levels varied between 108 and 261 per cent. During most of the period it was over 200 per cent. Furthermore, over a period of time, the differential in the two prices increased mainly because farm prices declined in the late fifties and retail prices rose continuously.

C. Comparison of Disposable Personal Income in Farm and Non-farm sector: To make the farm and non-farm income concept comparable, non-farm

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[4] E.M. Ojala, Agriculture and Economic Progress, (London: Oxford University Press,)1952 p. 122

TABLE LVIII

FARM KIND INCOME RETAIL PRICE VALUATION ADJUSTMENT - CANADA, 1926-61

| Period. | Unadj. kind incomes. | Adj. kind incomes. | Net adjust-ment. | Increase in adj. incomes. (% of Unadj. incomes). | Adjustment as % of net incomes. |
|---------|------|------|------|------|------|
| | Mill. Dollars. | | | | |
| 1926-30 | 238 | 495 | 257 | 108 | 48.1 |
| 1931-35 | 162 | 391 | 229 | 241 | 140.5 |
| 1936-40 | 176 | 389 | 213 | 232 | 58.7 |
| 1941-45 | 233 | 475 | 242 | 215 | 28.0 |
| 1946-50 | 293 | 581 | 288 | 209 | 22.5 |
| 1951-55 | 333 | 749 | 416 | 234 | 23.6 |
| 1956-60 | 338 | 823 | 485 | 255 | 37.9 |
| 1961 | 353 | 881 | 528 | 261 | 49.1 |

Source: Estimated on the basis of data obtained from Agricultural Division, Dominion Bureau of Statistics. For method of estimation, see p. 82, chapter V.

disposable income was calculated on an equivalent basis.[5] To make the recipients of this income equivalent, two criteria were adopted, per family and per normalized adult unit. The income differential between the sectors, on these bases is presented in Table LIX.

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[5]The term 'equivalent' refers to the strict comparability in the accounting of the two incomes, which would further mean inclusion of almost identical types of incomes for the two sectors. The procedure used was discussed in chap. 5.

TABLE LIX

FARM AND NON-FARM TOTAL PERSONAL DISPOSABLE INCOME RATIO PER

FAMILY AND N.A.U.[b] IN CANADA DURING 1941-61.

| Period | PER FAMILY INCOME | | | RATIO | | PER N A U[b] ON | | | RATIO | |
|--------|-------------------|---|---|-------|---|------------------|---|---|-------|---|
| | Farms Without KIVA[a] | With KIVA[a] | Non-Farm income | Col.2 / Col.4 % | Col.3 / Col.4 % | Farms Without KIVA | With KIVA[a] | Non-farm incomes | Col.7 / Col.9 % | Col.8 / Col.9 % |
| 1. | 2. $ | 3. $ | 4. $ | 5. | 6. | 7. $ | 8. $ | 9. $ | 10. | 11. |
| 1941-45 | 2404 | 2996 | 3101 | 77.6 | 96.6 | 460 | 556 | 706 | 65.1 | 78.1 |
| 1946-50 | 3789 | 4117 | 3894 | 97.3 | 105.7 | 711 | 830 | 1032 | 68.9 | 80.4 |
| 1951-55 | 5102 | 6089 | 4864 | 104.9 | 125.2 | 974 | 1159 | 1406 | 69.3 | 82.8 |
| 1956-60 | 5209 | 6437 | 5851 | 89.0 | 110.0 | 1019 | 1061 | 1700 | 59.9 | 74.0 |
| 1961 | 5430 | 6911 | 6354 | 85.4 | 108.8 | 1051 | 1338 | 1808 | 58.1 | 74.0 |

[a] Kind Income Valuation Adjustment.

[b] Normalized Adult Unit.

Source:  Estimation based on the data presented in Table LVII, and obtained from 1941 and 1961 census.

The left half of the table presents the ratio of incomes on
per a family basis. The ratio of farm to non-farm incomes ex-clud-
ing the valuation adjustment for incomes in kind indicated that farm
incomes in the fifties were almost at a par with non-farm incomes.
The ratio varied between 77.6 and 104.9 per cent of the non-farm in-
comes. If at the same time, the kind income valuation adjustment is
added to farm disposable incomes, the non-farm incomes fall below farm
incomes. Only during the period 1941-45 was the ratio of the two incomes
below one hundred per cent (96.6); in the rest of the period incomes of
farmers lead those of their urban counterparts.

The ratio of disposable income per family in farm and non-farm
sectors may not be accepted as a valid measure because it implicitely
assumes an identical family composition for the two sectors. In order
to achieve a more comparable situation, income ratios were computed on
per capita or per normalized adult unit (N.A.U.)basis; as presented in
the right half of Table LIX. Average income per NAU on farms excluding
K.I.V.A.,[6] varied between $460 during 1941-45 and $1029 in 1961 with a
continuous rising trend (Chart 6). When KIVA was included, this income
rose to $556 and $1316 per NAU, for the same period. The non-farm in-
come varied from $706 to $1800 per NAU. Resultantly the ratio of the
two incomes varied between 54.7 and 68.9 per cent without KIVA and bet-
ween 72.7 and 82.8 per cent after including it. Clearly the farm incomes,
though low, do not show a very big disparity when compared to non-farm

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[6]This is an abbreviation for "Kind Income Valuation Adjustment",
and will be used in this chapter as such.

CHART 6



DISPOSABLE INCOME PER NORMALIZED ADULT UNIT IN
FARM AND NON-FARM SECTORS, CANADA, 1941-61.

DISPOSABLE INCOME
PER N.A.U. - NON-FARM

DISPOSABLE INCOME
PER N.A.U. - FARM

FARM INCOME PER N.A.U.
FROM NON-FARM EMPLOY.

NET FARM INCOME FROM
FARMING PER N.A.U.

INCOME IN DOLLARS

YEARS

(Based on Data presented in Appendix XI)
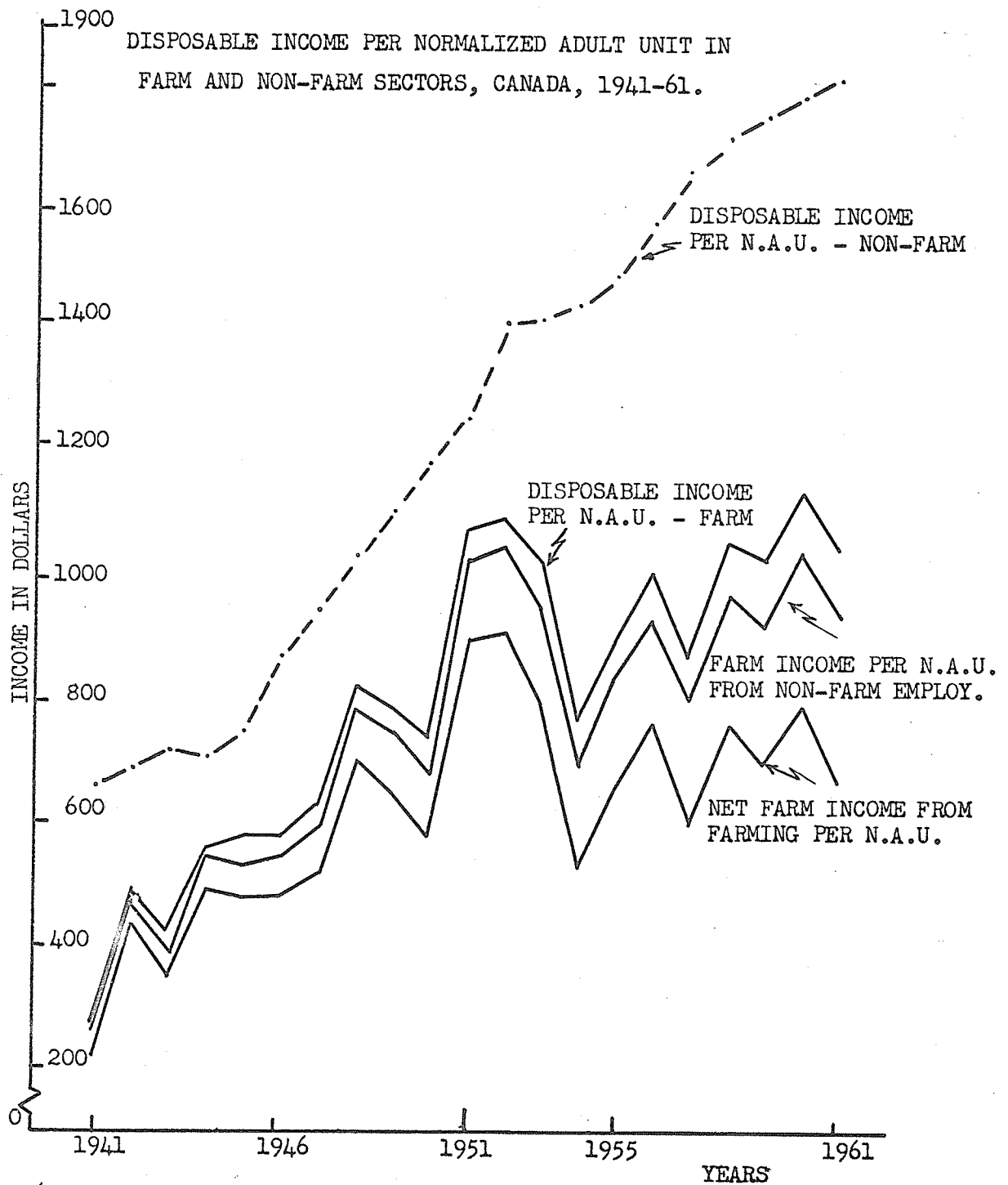
incomes. This conclusion will be valid during good crop years, such as those of the early fifties. But as Mother Nature is not always generous, not all crop years are good. During the bad crop years farm incomes may fall much further in comparison with non-farm incomes, even when income from non-farming sources has been included.

D. Regional Differences in Total Disposable Income Ratio:- Canadian agriculture, as previously examined, reveals heterogeneous income conditions in various provinces. In order to examine the regional pattern of income disparity, disposable income in farm and non-farm sectors was estimated for the year 1958. For Canada as a whole the ratio of farm and non-farm disposable income in this year came to be 42.4 per cent. (Table LX). In its regional setting, the ratio varied between 30.8 for Quebec and 63.3 per cent in British Columbia. Moreover, the ratio in Ontario, the Prairies and British Columbia was relatively higher than the other Eastern Provinces.

This ratio obtained on the basis of the 1958 Farm Business Survey seems to be underestimated to some extent, since the survey estimates for net farm income were much lower than those given by the Agricultural Division of Dominion Bureau of Statistics for similar definitions of net farm incomes. The average farm income per NAU in Canada in 1958, according to the latter estimates came to be 50.4 per cent of the non-farm income in the same year. But, on the basis of this data as well, it can be concluded that Canadian agriculture in its regional pattern is not homogeneous industry.

TABLE LX

RATIO OF FARM AND NON-FARM PERSONAL DISPOSABLE INCOME IN CANADA,
BY PROVINCES. 1958

| Provinces | Farm disposable income.[a] $ | Non-farm disposable income[b] $ | Ratio % |
|---|---|---|---|
| Prince Edward Island | 761 | 1272 | 59.8 |
| Nova Scotia | 596 | 1335 | 44.6 |
| New Brunswick | 476 | 1236 | 38.5 |
| Quebec | 490 | 1590 | 30.8 |
| Ontario | 968 | 2050 | 47.2 |
| Manitoba | 955 | 1836 | 52.0 |
| Saskatchewan | 818 | 1778 | 46.0 |
| Alberta | 993 | 1994 | 49.7 |
| British Columbia | 1281 | 2021 | 63.3 |
| Canada | 774 | 1823 | 42.4 |

[a] Calculated as (Cash income + Custom Expenditure + Income in kind + Inventory change + Income from non-farm employment + Transfer payment + Investment and other incomes) - (Income from Custom Work + Operating Expenses + Depreciation + Farm Income taxes) + Wages of farm hired laborers.

[b] Non-farm income was calculated as:
Total disposable income in the province - agricultural net income as calculated in (a).

Source: Farm Incomes were obtained from the 1958 Farm Business Survey Report, and the Non-farm incomes were obtained from the National Accounts, Income and Expenditure, Dominion Bureau of Statistics, Ottawa.

E.  Intra-agricultural Disparity in Incomes from all Sources:

Commercial Farms: - Three cross-classifications of commercial farms,
as discussed in Chapter VII, were made to estimate intra-agricultural
disparity in total farm incomes.

The first classification of farms was according to the value of
product sold.  The figures for this classification indicated that the
average income per commercial farm[7] from all sources was $2502 per year;
out of this 48.2 per cent came from farm sources, 31.4 per cent from non-
farm employment, 13.5 per cent from government and the rest from other
sources including investment incomes.  (Table LXI).  Income from non-
farm sources was proportionately greater on farms which represented
smaller sized businesses.  In Canada, the tendency was observed on
all the farms selling products below $2999 value.  Income per farm
from all sources, as well as contribution of farm to total, increase
with size of farm business.  For example, on farms having a sale value
of products between $1000 to $1999, farm income contributed 19.1 per cent
to the total as against 64.7 per cent on the farms selling in between
$20,000 and $24,999 per year.  Similarly, the income from government
sources decreased with increases in the size of farm income.

The second cross-classification of commercial farms was by
types of enterprises.  The income pattern in this case revealed that

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[7]
    Because of unavailability of number of families on these farms,
the computation was done on a per farm basis.  It may be argued, however,
that one commercial farm can conveniently be assumed to maintain one
single family.  To this extent these figures will be equivalent to
those obtained on a per family basis.

TABLE LXI

INCOME FROM ALL SOURCES PER COMMERCIAL FARM, CLASSIFIED ACCORDING TO

VALUE OF THE PRODUCT SOLD, CANADA 1958.

| Value of prod. sold category. Dollars | Per farm income from all sources. $ | Farm | % of the total income from | | |
| | | | NF[a/] Emp.-loyment | Govt. | Invest-ment. |
| --- | --- | --- | --- | --- | --- |
| 0- 999 | 1956 | -9.9 | 78.9 | 23.9 | 5.1 |
| 1000- 1999 | 1717 | 19.1 | 53.9 | 19.3 | 4.9 |
| 2000- 2999 | 1656 | 39.2 | 42.2 | 11.0 | 5.1 |
| 3000- 3999 | 2013 | 55.7 | 22.0 | 16.1 | 3.8 |
| 4000- 4999 | 2207 | 62.0 | 18.5 | 14.0 | 4.0 |
| 5000- 5999 | 2806 | 60.5 | 21.2 | 10.9 | 4.5 |
| 6000- 7999 | 3443 | 74.9 | 11.8 | 8.2 | 3.5 |
| 8000- 9999 | 3590 | 76.2 | 9.3 | 7.9 | 4.0 |
| 10000-14999 | 4680 | 77.6 | 10.0 | 6.3 | 3.9 |
| 15000-19999 | 6369 | 81.1 | 8.1 | 4.2 | 4.4. |
| 20000-24999 | 3673 | 64.7 | 9.5 | 6.2 | 15.7 |
| 25000[+] | 10346 | 82.6 | 4.3 | 2.6 | 9.3 |
| All farms. | 2502 | 48.2 | 31.4 | 13.5 | 4.7 |

a/ Non-farm

Source: Estimated on the basis of the data supplied by the 1958 Farm Business Survey Division, Dominion Bureau of Statistics.

the high incomes from all sources were obtained on fruits and vegetable, mixed and miscellaneous farms. (Table LXII). The average income varied in between $3535 per year on miscellaneous farms to $2478 per year on livestock farms. This table like the preceding ones, confirmed the same characteristic that lower farm income was supplemented

TABLE LXII

INCOME PER COMMERCIAL FARM FROM ALL SOURCES, CROSS CLASSIFIED ACCORDING

TO TYPE OF ENTERPRISES, CANADA, 1958.

| Type of enterprises. | Av. income from all sources. | % of the total income from | | | |
|---|---|---|---|---|---|
| | | Farm | NF Emp.[a] | Govt. | Invs.[b] |
| Livestock | $2478 | 49.3 | 30.7 | 13.7 | 4.2 |
| Crops | 2516 | 54.6 | 25.1 | 12.4 | 3.8 |
| Fruit and veg. | 2634 | 18.8 | 58.0 | 12.0 | 6.7 |
| Mixed | 2527 | 23.5 | 51.7 | 18.2 | 3.9 |
| Miscellaneous | 3535 | 38.3 | 48.7 | 9.3 | 2.9 |

[a] Non-farm Employment.

[b] Investment.

Source: Same as that of table LXI.

proportionately more with the incomes from non-farming sources than were higher farm incomes.

Commercial farms were classified also according to value of farm capital. The conclusion drawn from this table was similar to that derived on the basis of the first classification because of a very high correlation between farm income and capital investment. The contribution of farm sources to the total income on a farm having a capital investment of $19,949 or less was very low. The non-farming sources on these farms contributed as high as 42.0 per cent of the total income. (Table LXIII). On farms with high capital investment, the main source of total income was from farming sources with income

## TABLE LXIII

INCOME FROM ALL SOURCES PER COMMERCIAL FARM CLASSIFIED ACCORDING TO

VALUE OF FARM CAPITAL IN CANADA, 1958.

| Farm capital category. Dollars | Income per farm from all sources. $ | Farm | % of the total income from | | |
| --- | --- | --- | --- | --- | --- |
| | | | NF emp.[a] | Govt. | Investment |
| $   0-   2949 | 1752 | 4.5 | 56.8 | 29.9 | 3.7 |
| 2950-   4949 | 1691 | 7.8 | 60.2 | 27.8 | 1.7 |
| 4950-   9949 | 1874 | 17.2 | 56.4 | 21.5 | 2.8 |
| 9950-  19949 | 2010 | 35.9 | 42.0 | 16.3 | 3.6 |
| 19950-  29949 | 2455 | 53.1 | 28.3 | 12.4 | 4.3 |
| 29950-  39949 | 2859 | 63.0 | 18.3 | 10.5 | 5.6 |
| 39950-  49949 | 3521 | 66.8 | 16.4 | 8.2 | 6.0 |
| 49950-  59949 | 3848 | 73.1 | 12.6 | 8.1 | 6.5 |
| 59950-  79949 | 5508 | 75.8 | 12.1 | 5.1 | 5.2 |
| 79950-  99949 | 4445 | 80.5 | 10.5 | 6.3 | 6.8 |
| 99950- 149949 | 6109 | 74.5 | 9.6 | 4.5 | 10.7 |
| 149950[+] | 13583 | 76.2 | 6.1 | 2.4 | 14.6 |

[a] Non-farm Employment

Source:   Same as that of Table LXI

from government sources and from off-farm investment becoming less

important as capital investment increased.

Thus, it can be concluded that the disparity in incomes from

all sources between the two sectors seems not to have been large.  This

has been especially so during good crop years.  During the post-

depression period, the income of farm people per MAU was found to vary

between 58 per cent and 69 per cent of incomes of non-farm people.

III  COMPARISON OF FAMILY LIVING EXPENDITURES AND DIFFERENCE IN COST

OF LIVING

A.  Family Living Expenditures: - The comparison of family living in

farm and non-farm sectors expenditures evaluates the two sectors on

the same basis as used for comparison of total disposable incomes.  In

order to make a comparison of the family expenditures, data was

obtained from the D.B.S. surveys.  The farm sector was studied on the

basis of data supplied by the 1958 Farm Business Survey.  According

to this data, an average farm family in Canada spent $3397 per year.

(Table LXIV).  Of this, $3193 was spent on current expenditures

(consumption), constituting 94 per cent of the total.  The remaining

six per cent was divided between contributions and gifts (3.8 per cent),

and life insurance and annuities premiums (2.2 per cent).  Food was

the largest single item of expenditure, making up 36 per cent of the

total, followed by expenditure on housing.  (13.5 per cent).

With respect to the regional pattern of expenditure per family,

the highest expenditure was incurred by families in Quebec ($3518),

followed by Ontario families ($3451), and Saskatchewan being $2911.

This total expenditure per family, to a certain extent does not reflect

a comparable situation for the two sectors.  In order to obtain a more

comparable view of expenditure in different provinces, family expenditure

per person (Year Equivalents) was calculated.  The surprising ranking

of Quebec as first on a family basis is modified by large family sizes

which result in it being lowest on a family expenditure per person basis.

The highest expenditure per person was in Alberta, ($916) followed

TABLE LXIV

PATTERN OF FARM FAMILY EXPENDITURES IN CANADA BY PROVINCES DURING 1958.

| Province. | Total expenditure. $ | Exp. per person $ | % of the total exp. on Food. | Hous. ing | Appli.- ances | Others a/ |
|---|---|---|---|---|---|---|
| Prince Ed. Is. | 3153 | 750 | 36.7 | 15.7 | 5.4 | 11.3 |
| Nova Scotia | 2911 | 647 | 38.9 | 15.9 | 5.7 | 10.6 |
| New Bruns. | 3273 | 616 | 38.9 | 16.6 | 5.2 | 11.5 |
| Quebec | 3518 | 592 | 38.1 | 11.4 | 8.3 | 10.7 |
| Ontario | 3451 | 903 | 32.9 | 15.7 | 7.4 | 10.1 |
| Manitoba | 3286 | 845 | 36.8 | 11.9 | 7.1 | 11.4 |
| Saskatchewan | 3445 | 895 | 35.4 | 13.6 | 7.3 | 11.6 |
| Alberta | 3379 | 916 | 38.0 | 11.7 | 7.2 | 11.3 |
| British Columbia | 3119 | 886 | 36.4 | 13.7 | 7.8 | 11.9 |
| Canada | 3397 | 786 | 36.0 | 13.5 | 7.4 | 11.0 |

a/ Includes Health care, personal care, recreation, reading and education.

Source: D.B.S., Daily Bulletin, Vol. 33, no. 96, May 20, 1964.

by that in Ontario and Saskatchewan. Strictly speaking these figures are not completely comparable since they implicitly assume an uniform age structure of family members in different regions. However, the limitation of data availability does not permit the testing of its effect.

Comparable urban current consumption expenditure per family in 1959 was $4357, and $4655 for total expenditure excluding personal taxes.[8]

[8] D. B. S., Daily Bulletin, op. cit., p. 1.

Thus, the average ratio of farm to non-farm current consumption expenditure was 72.9 per cent, whereas that of total expenditure was 73.3 per cent. [9] These ratios, like those for incomes, do not indicate a very depressed income position of the farm sector.

B. Differences in Living Costs: - Farmers have usually been regarded as enjoying lower living costs comparative to urban dwellers. Opinions, however differ greatly as to the amount by which living costs may be lower in the farm home, and the comparative importance to be given to the various cost components in farm and in urban homes. [10] Very little work has been done on this topic, and present evidence is more or less inconclusive. In order to obtain an impression of this difference, a study conducted by Frank Lawrence[11] in Eastern Ontario of the expenditure of a group of dairy farmers for the year 1956-57 was examined. Three main items of cost difference were investigated in the study: Value of farm perquisites, use of farm dwelling, and cost of farm car to the household.

The average difference between the two sectors for those items was $937 per year. This provided a more comprehensive and realistic estimate of the lower cost of country living, but, it does not apply

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[9]The proportion of F/NF expenditure was calculated as ($3193÷ $4357) .100 = 72.9%. and ($3397 ÷ $4655).100 = 73.3%.

[10]F. Lawrence, A look into Farm Living costs, The Economic Annalist. Vol. 30, no. 3. June 1960. p.

[11]Ibid.

TABLE LXV

FARM AND NON-FARM DISPOSABLE INCOME RATIO AFTER ADJUSTING FOR COST OF

LIVING INDEX, CANADA 1941-61.

| Period. 1. | Adjusted farm disposable income | | Non-farm adjusted disposable income. 4. | Col. 2 Col. 4 % 5. | Col. 3 Col. 4 % 6. |
|---|---|---|---|---|---|
| | With KIVA $ 2. | Without KIVA.$ 3. | | | |
| 1941-45 | 797 | 660 | 964 | 82.6 | 68.4 |
| 1946-50 | 925 | 792 | 1117 | 82.8 | 70.9 |
| 1951-55 | 985 | 827 | 1215 | 81.0 | 68.0 |
| 1956-60 | 1015 | 821 | 1372 | 73.9 | 59.8 |
| 1961 | 1034 | 812 | 1399 | 73.9 | 58.0 |

Source: Estimation based on data presented in Table LIX and price statistics collected from Price Indexes, Price Division, Dominion Bureau of Statistics, Ottawa.

to Canada as a whole. Nevertheless, it does indicate that farmers as compared to urban dwellers are at an advantage in family living expenses, particularly when living is heavily supplemented with farm grown products.

In order to maintain consistency in the ratio of farm and non-farm incomes over time, the disposable incomes per NAU were adjusted for movements of the costs of living index. In terms of constant[12] dollars, farm incomes including KIVA, varied between 82.6 per cent and 73.9 per cent of non-farm incomes, with a continuously decreasing trend. (Table LXV). Even when KIVA was excluded, the

[12]The constant dollar income was derived by dividing the current dollar income by the sector's cost of living index.

tendency of farm income remained the same, although it was reduced to a level between 58.0 per cent to 70.9 per cent of non-farm incomes.

If it can be anticipated that the differences in living expenditures over a period of time, will move in favor of agriculture, cheaper family living on farms may very well become one of the explanations for the attachment of many farm families to the farm sector in spite of low levels of incomes.

## IV  AVAILABILITY OF HOUSING CONVENIENCES

Comparison of the disposable incomes of consumers in the farm and non-farm sectors provides only a partial view of the economic welfare of that group of individuals.  Supplementation of such a comparison in order to obtain a more reliable level of economic welfare should be made with comparisons of other material and non-material items.  Material components of level of living lend themselves to more objective research than the non-material aspects of family organization. Amongst these may be enumerated the amenities in rural and urban homes.

Average housing characteristics in 1961 as presented in Table LXVI reveal that on all the items included the amenities in farm houses fell below those in urban homes, for example, on an average, less than half of the total farm houses had facilities such as steam or hot air, private bathrooms, and flush toilets.  These facilities in the case of urban and rural non-farm houses were present in 70 per cent or more of the houses.  Inside running water was found in only 60.6 per cent of all farm houses, but in 92.2 per cent of all non-farm houses.

TABLE LXVI

SELECTED HOUSING CONVENIENCES AND UTILITIES IN FARM AND NON-FARM HOUSES

IN CANADA DURING 1941-61,

(As percentage of the total houses.)

| Characteristics | 1941 | | 1951 | | 1961 | |
|---|---|---|---|---|---|---|
| | Farm | Non-farm | Farm | Non-farm | Farm | Non-farm |
| Heating (Steam and hot air.) | 13.2 | 37.7 | 23.2 | 51.7 | 44.0 | 70.0 |
| Inside running water. | 12.2 | 61.1 | 32.8 | 82.7 | 60.6 | 92.2 |
| Private bathroom. | 6.5 | 45.9 | 16.0 | 70.5 | 41.3 | 84.6 |
| Flush Toilet. | 8.3 | 55.7 | 20.3 | 78.7 | 46.8 | 89.4 |
| Mechanical Refrigerator. | 3.6 | 21.9 | 21.7 | 52.4 | 80.0 | 92.2 |
| Radio | 60.6 | 77.9 | 88.6 | 92.9 | – | – |
| Telephone. | 29.3 | 36.6 | 44.1 | 62.9 | – | – |
| Automobile. | 43.8 | 35.3 | 52.1 | 40.0 | 77.5 | 67.4 |
| Televison. | – | – | – | – | 67.2 | 84.2 |

Source: Estimated on the basis of data obtained from the 1941, 1951 and 1961 census.

On the other hand, farm houses were better equipped in terms of mechanical refrigeration and in automobile ownerships, farm families have led the non-farm families with 77.5 per cent of the farm families having automobiles as against only 67.4 per cent of families in the non-farm sector, in 1961. A majority of the farm families also own a radio, telephone and television. However, it can be argued that these amenities are really necessities for farm families, and their higher proportion among farm families should not lead one to conclude that farmers are really better off than non-farm households.

Moreover, the data presented in the table indicates that certain housing amenities are at a lower level in farm houses than in non-farm houses, but the rate of growth of their introduction has been more rapid in the case of farm houses than in case of non-farm.

## V  DISTRIBUTION OF INCOMES

The comparison of simple average incomes in two sectors conveys very little meaning with respect to the general well being of the sector. The distribution of total income, especially the relative concentration of wealth in the society, seems to be a better guide and criterion of fairness of incomes.

The distribution (comparative view) of income in farm and non-farm sectors has been studied in three aspects:  (1)  income distribution by occupation for taxable returns during 1950-60 along with the concentration of total income, (2) distribution of persons in major occupations by income groups during 1961, and, (3) income inequalities in the two sectors.

The first set of data, i.e. income distribution by occupations for four income groups is shown in table LXVII.  Distribution of incomes during 1950 indicated that a little more than 50 per cent of the farmers received 30.3 per cent of total income.  About 88 per cent of the persons on farms earned less than $5999 per year.  On the other hand in the non-farm sector 95.3 per cent of the total persons earned only 81.3 per cent of total incomes.  During 1950-60 in both the sectors, the number of low income earners declined considerably.  Only 37.6 per cent in the farm and 34.8 per cent in the non-farm sector were in

DISTRIBUTION OF TAXABLE RETURNS BY INCOME GROUPS AND TOTAL INCOME

1950 and 1960

| Income Group. $ | FARMERS. | | | | NON-FARMERS | | | | |
| | No. of Persons in | | Total income in | | No. of persons in | | Total income in | | No. pe: |
| | 1950 | 1960 | 1950 | 1960 | 1950 | 1960 | 1950 | 1960 | 19! |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0-2999 | 51.3 | 37.6 | 30.3 | 19.6 | 69.2 | 34.8 | 47.8 | 17.1 | 26, |
| 3000-5999 | 36.7 | 50.5 | 39.9 | 50.3 | 26.1 | 51.5 | 33.5 | 51.5 | 32, |
| 6000-9999 | 7.5 | 7.2 | 14.5 | 15.4 | 2.5 | 10.5 | 6.1 | 18.1 | 16, |
| 10000$^+$ | 4.5 | 4.7 | 15.3 | 14.7 | 2.2 | 3.2 | 12.6 | 13.3 | 24, |

Source: Estimated from Taxation statistics, Department of Nati

TABLE LXVIII

DISTRIBUTION OF FAMILIES AND UNATTACHED INDIVIDUALS BY INCOME GROUPS

IN DIFFERENT OCCUPATIONS IN CANADA, 1961

(As % of the total).

| Income group. $ | Managerial persons. | Profess-ional | Cler-ical | Service | Farmers fishing logging | Labor |
|---|---|---|---|---|---|---|
| 1000 | 1.5 | 8.9 | 2.2 | 12.7 | 10.8 | 5.6 |
| 1000-1999 | 2.4 | 5.3 | 4.9 | 14.8 | 26.6 | 14.8 |
| 2000-2999 | 7.7 | 6.6 | 10.5 | 18.9 | 24.1 | 20.4 |
| 3000-3999 | 10.1 | 8.8 | 18.1 | 14.8 | 15.2 | 21.3 |
| 4000-4999 | 11.9 | 9.5 | 22.7 | 12.5 | 9.3 | 16.5 |
| 5000-5999 | 13.9 | 13.0 | 14.9 | 10.2 | 5.1 | 8.8 |
| 6000-6999 | 13.5 | 12.3 | 11.4 | 6.1 | 3.7 | 5.3 |
| 7000-7999 | 9.5 | 9.0 | 6.5 | 3.8 | 1.6 | 2.7 |
| 8000-9999 | 12.7 | 13.7 | 5.7 | 4.6 | 1.7 | 3.0 |
| 10000+ | 16.6 | 12.9 | 3.0 | 1.5 | 1.9 | 1.7 |

Source: Dominion Bureau of Statistics, Distribution of Non-farm Incomes in Canada by Size, 1961. Ottawa.

the first category by 1960. The highest concentration of low earners was in the class of employees and business proprietors. The distribution of employees by income categories was even worse than that of farmers. However, no definite conclusion about the concentration of incomes in these occupations can be derived because of incomplete coverage of persons in the farm sector.

To obtain a better picture of income distribution, data was taken from the survey of non-farm families for 1961. The survey gave

the distribution of persons by income groups in major occupations in 1961. During 1961, the proportion of earners with income less than $2999 per year was highest in the case of farmers, fisherman and loggers, and lowest in the case of managers. (Table LXVIII). Incomes below $2999 also made up a very high proportion of the workers in services and laborers (being 46.4 per cent and 40.0 per cent respectively). Because of the inclusion of fishermen and loggers along with farmers, this data does not give any clear evidence about the distribution of incomes among farmers.

In order to get a valid comparison of fairness of distribution, evidence from special surveys for the farm and non-farm sectors have been taken. The proportion of families in the farm sector with less than $2000 of income in 1958 was 35.3 per cent earning 26.0 per cent of the total income. (Table LXIX). The corresponging figures in the non-farm sector are 26.4 per cent of persons earning only 7.2 per cent of the total income. At the other extreme, income of more than $5000 per year was earned by 29.3 per cent of the farmers with 46.9 per cent of the total income. Correspondingly, in the non-farm sector these figures were 22.2 per cent of persons with 46.5 per cent of the total income. If these figures are drawn as a Lorenz curve, it is revealed that the inequality in the non-farm incomes is greater than that in the farm incomes. (Chart 7). The index of concentration for farm incomes was estimated to be 0.204, as against 0.394 for non-farm incomes.[13] Thus, at least for commercial farms, it may be stated that

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[13]The index of concentration is a by-product of the Lorenz

TABLE LXIX

DISTRIBUTION OF FARMS AND NON-FARM FAMILIES BY INCOME GROUPS

IN 1955 and 1958.

| Income groups. $ | Commercial farms in 1958. | | Non-farm families in 1955 | |
|---|---|---|---|---|
| | No. of farms. | Total income. | No. of families. | Total income. |
| | (As % of the total.) | | | |
| 0- 500 | 11.5 | 9.3 | 5.0 | .4 |
| 501- 999 | 7.7 | 5.7 | 7.1 | 1.3 |
| 1000-1499 | 7.8 | 5.5 | 7.9 | 2.5 |
| 1500-1999 | 8.3 | 5.5 | 6.4 | 3.0 |
| 2000-2499 | 7.8 | 5.0 | 8.2 | 4.8 |
| 2500-2999 | 6.6 | 4.5 | 8.3 | 6.6 |
| 3000-3499 | 6.3 | 5.1 | 9.4 | 8.0 |
| 3500-3999 | 5.5 | 4.4 | 9.5 | 9.2 |
| 4000-4999 | 9.2 | 8.1 | 15.1 | 17.5 |
| 5000-9999 | 20.4 | 26.7 | 19.1 | 32.6 |
| 10000+ | 8.9 | 20.2 | 3.1 | 13.9 |

Source: Farm – Estimated from the data supplied by the 1958 Farm Business Survey division, D.B.S., Ottawa.
Non-farm – Income Liquid Assets and Indebtedness in non-farm families in Canada in 1955, Ref. paper no. 80. Dominion Bureau of Statistics, Ottawa.

their income is more evenly distributed than the income of non-farm

families.

curve. The Lorenz curve is the curve showing the cumulative percentage of aggregate income received by the cumulative percentage of income recipients, cumulating from the lowest incomes. The index of concentration is a measure of inequality, which is a ratio of the area between the Lorenz curve of a distribution and the line of equality, and the area under the line of equality.

CHART 7

DISTRIBUTION OF FARM AND NON-FARM
FAMILY INCOMES IN CANADA.
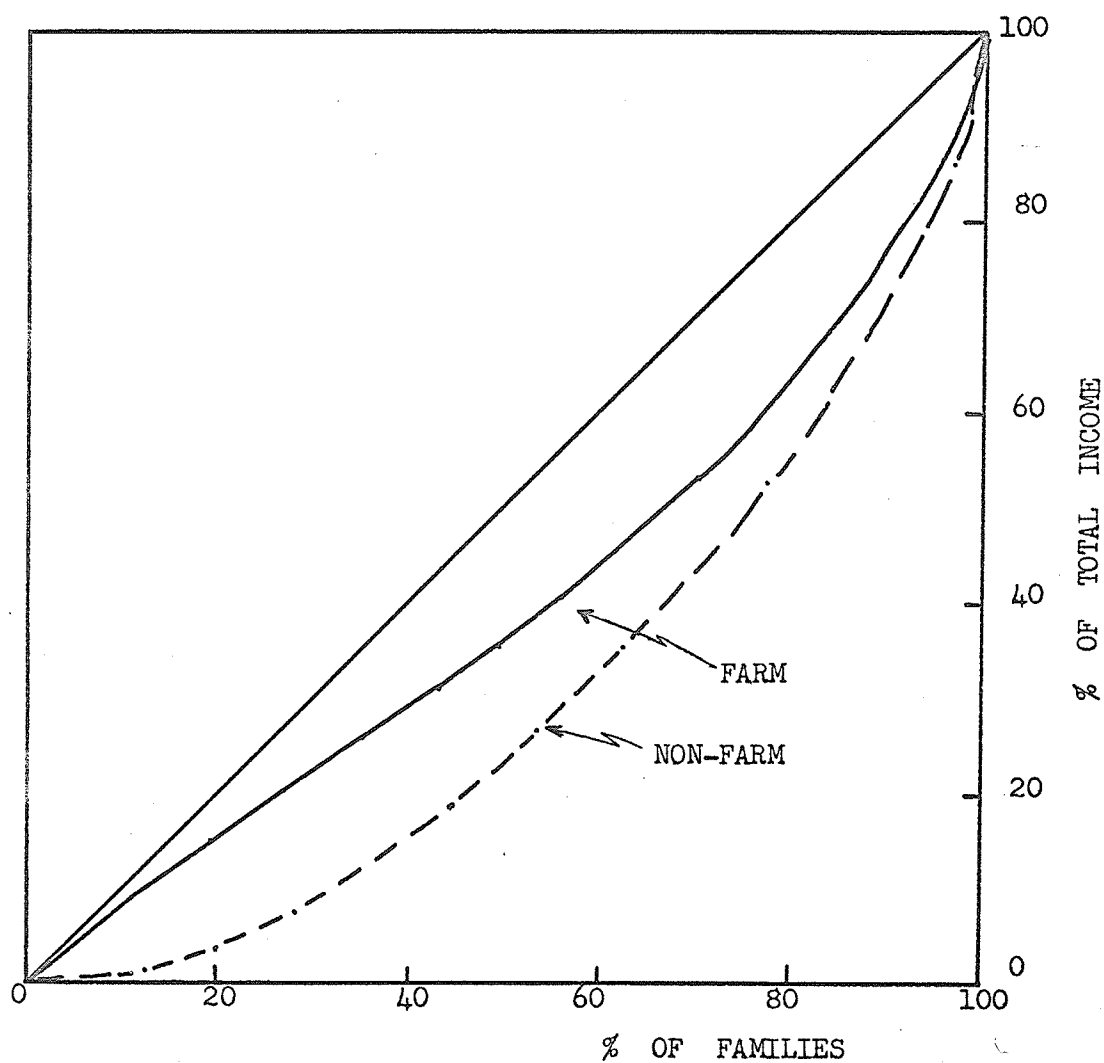


(Based on Data presented in Table LXIX)

## VI. NON-ECONOMIC CONSIDERATIONS

A. <u>Differences in the hours of work and working conditions</u>: — The
conditions of work of a farmer have been regarded as harder and phy-
sically more exhausting. But this situation remains controversial when
a comparison of a few non-farming conditions is made. As the conditions
of laborers in mining, logging and other industries like construction,
can easily be called equally straining, this point does not seem to
retain much validity.

The contrast between agriculture and industry in attaining and
adjusting to a shorter working schedule is worth noticing. Organized
labor is in a strong position to acquire more leisure, often with little
loss in wages. The farmer as an individual has been less favourably
situated to reduce the amount of time he works and not experience some
loss in income. At the same time, it may be argued that a city worker
might have to drive a long way to work, whereas a farmer may not have
to do this.

However, the points for and against having more exhausting work-
ing conditions off-set each other, and no definite conclusion can be
reached.

B. <u>Psychic Satisfactions in Livelihood</u>: — A survey conducted in 1959[14]
revealed the following types of satisfactions which farmers mentioned
they derived from farming:

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[14] H. C. Abell, <u>A Report on Opinions about the Rural Community
and Rural Living</u>. Economics Division, Canada Department of Agriculture,
Ottawa, March 1959.

A. Related to the Individual:

1. Independence: in the form of personal freedom and
   security in the sense of peace of mind. Challenge
   and satisfaction in making one's own decisions,
   self-sufficiency, opportunities and satisfaction in
   producing food for others and opportunities for
   initiative and accomplishment.

2. Closeness to nature: Outdoor life and work, absence
   of crowds, and tensions, beauty of nature, the
   scenery, space, fresh air, sunshine and quietness.

B. Factors Relating to the Social Group:

3. Family unit and child rearing: Best place to
   develop a sense of values in the children, home
   life more stable, family ties stronger.

4. Rural community as a social force: Appropriate
   neighbors, mutual interests with neighbours.

VII  RELATIONSHIP BETWEEN FARM AND NON-FARM INCOMES.

One of the questions very frequently asked, in order to devise
a policy of resource adjustment is: To what extent do farm and non-farm
income levels differ? The answer to this question can be obtained by
comparing the differences in the age distribution, female ratio, pur-
chasing power, capacities of workers, burden of income taxes and other
things. On many of these points no reliable information for Canada, is
available. However, if similar estimates are borrowed from the U.S.A.,
Johnson[15] calculated that, "... if per capita farm incomes are 68 per cent
of per capita non-farm incomes, labor of equivalent earning ability would
be receiving the same real returns in the two sectors of the economy."[16]

[15]D. Gale Johnson, 'Labor Mobility and Agricultural Adjustment',
Ch. 10 in Agricultural Adjustment problems in a Growing economy,
Iowa State Uni. Press, 1956. pp. 163-172

[16]Ibid. p. 169

If such a conclusion can be assumed to be true for Canadian farm workers,
then their real incomes during the post-depression period have been
equal to those in the non-farm sectors.

The final verdict on the real relationship between farm and non-
farm incomes in Canada will be determined by the value judgments of the
persons whose incomes are being compared and their reaction to various
aspects of level of living. A survey[17] of the operators' understanding
or value judgements of the level of living concept revealed that 44.5 per
cent of farmers felt it as purely materialistic, 23.5 per cent felt it
as primarily materialistic but includes the non-materialistic issues,
11.9 per cent responded that it is primarily non-materialistic but includes
the materialistic aspect as well, and 12.9 per cent felt it as pure non-
materialistic. If these results are accepted to be tentatively plausible,
the relationship between farm and non-farm incomes would be close to
equal.[18] Thus, a comparison of levels of living or welfare must not
ignore the great differences in the value system between rural and urban
people. Farming as a 'way of life' implies independence, freedom, coope-
ration within the family and in the community, concern for the well-being
of the family and neighbors and enjoyment of the quiet and beauty of the

[17]H. C. Abell, Alberta Farm Operators and the Level of Living
Concept. Economics Division, Oct. 1952, Ottawa.

[18]According to the survey 24.8 per cent farmers felt level of living
as primarily non-materialistic, and the rest felt it primarily material-
istic. From the evidence collected in this study the extent of disparity
for materialistic factors varies between bad and fair; and that for non-
materialistic items is in favour of farming. If a weighted average of
disparity between these factors is computed, the final relationship would
lie close to equal.

countryside. Intagible rural values compensate for the lack of some urban amenities. The increased flow of urban workers to homes located away from large built-up areas bears witness to this human urge to enjoy the calm of country life.[19]

## CONCLUSION

The level of welfare of a group of individuals is determined by economic as well as non-economic factors. Among the economic factors are included: Disposable personal income, family living expenditures, housing amenities, distribution of incomes. The non-economic factors include working conditions, sociological and psychological satis-factions to individuals.

When these factors were examined in order to evaluate the relationship between farm and non-farm incomes, it was revealed that the disposable personal income ratio between farm and non-farm sectors varied between 58.1 per cent and 69.3 per cent. When KIVA was included in the farm incomes, this ratio ranged from 74.0 per cent to 82.8 per cent. The ratio of the family expenditures in farm and non-farm sectors for the year 1958 was estimated at 73.3 per cent.

The farm houses fell below the urban homes with respect to having certain amenities, such as steam-heating, bathrooms, flush toilets. However these houses were better equipped with refrigeration; and in car ownership farm families led non-farm families. The distri-bution of the farm incomes was more equal than that of non-farm incomes.

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[19]H. C. Abell, The Farm Family in Canada, The Economic Analist, vol. XXIX, no. 3, June 1959.

Farm sector was found to avail certain sociological and psychic satisfactions in livelihood. Perhaps, such intangible rural values may have compensated for the lack of urban amenities.

CHAPTER IX

IMPLICATIONS OF INCOME COMPARISONS FOR AGRICULTURAL POLICIES

A knowledge of the real disparity between incomes of the farm and
non-farm sectors in an economy is basic for policy making. Such a knowledge
guides agricultural policy formulation by suggesting a suitable basis on
which various programs may be developed. The present study has indicated
such a basis which may be used to guide agricultural policies in general.
A summary of the implications of income comparisons for policy formulation,
together with a general discussion of agricultural policies in Canada, is
given in this chapter.

Lower per capita farm income relative to non-farm income may be
regarded as one of the more important farm problems in Canada. The lower
level of income in agriculture would appear to be caused by the lack of
adjustment of resources in the economy. For example, it may be due to a
continued overproduction of farm products relative to their demand and to
an excessive supply of farmers. Along with being low, farm incomes in
Canada have also exhibited certain other characteristics,[1] which will be
discussed in this section.

Comparison of incomes, made earlier in this study, discussed
separately the efficiency of labor use in agriculture and the welfare of
farm people. Based on the efficiency criterion the study indicated that

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[1]This summary is based on the findings reported in chapters VI,
VII, and VIII.

the real productivity[2] of a worker in agriculture was lower than that of a non-agricultural worker. The estimates of the real productivity of farm workers were derived by adjusting the current dollar labor income of the farm sector for the movements of product prices and differences in the length of employment of workers. The current dollar labor income ratio of farm and non-farm sectors per normalized man equivalent (NME) during the period 1941-61, varied between 18.2 per cent and 34.8 per cent, whereas the 1949 dollar income of total workers per NME ranged from 37.8 per cent to 58.5 per cent. These figures imply that the efficiency of labor use in agriculture has been much lower than that in other sectors of the economy. Furthermore, the labor efficiency ratio was higher in the case of self-employed workers than in the case of wage earners.

The regional distribution of both farm and non-farm incomes differed widely. In particular, farm incomes in various regions had the following features: (1) There was a positive correlation between the levels of farm and non-farm incomes in various regions, implying that farm incomes in the long run have tended to move in the same direction as non-farm incomes, (2) There was a wide distribution of farm incomes not only among various provinces but also within a province, and (3) Disparity of incomes within agriculture exceeded that between the agricultural and non-agricultural industries.

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[2]Real productivity of a worker is defined as the constant value of his return as a factor of production engaged in a particular occupation.

Farm income levels in any particular region were shown to be clearly related to the level of total capital and the educational standards of workers. It is likely that the latter factor also contributes to the differences in incomes within agriculture by becoming an impediment to labor migration.

Farm incomes were shown to be more unstable than non-farm incomes. Furthermore, the variability in farm incomes differed for the different provinces. There was also a positive correlation between the relative variability in incomes and their levels.

The study indicated that, in the provinces where farm incomes were low, farmers tended to obtain a larger proportion of their total incomes from non-farm sources. It implies that the comparison of farm incomes, strictly from the farm sources, and the non-farm incomes, may not be a valid procedure, particularly when the objective of such a comparison is that of determining the relative level of welfare. Thus, where the income comparison is made to estimate the relative level of welfare of farm and non-farm people, incomes from all the sources should be included. The ratio of the incomes from all the sources in the farm and non-farm sectors during 1941-61 varied between 58.1 per cent and 69.3 per cent. When the kind income valuation adjustment was added, the ratio of the two incomes varied from 74.0 per cent to 82.8 per cent. Certain non-income (economic and non-economic) factors were also found to be associated with incomes of the farm sector. These factors include lower cost of living, opportunities to accumulate capital assets, more equal distribution of incomes,

and sociological and psychic satisfactions.

The basic premises, around which agricultural policies in Canada have centered, are that farm incomes have been substantially lower than non-farm incomes, and that public policy should be directed towards preserving an equality or parity of purchasing power for each unit of agricultural production. While the parity principle has not been fully incorporated into most of the agricultural policies, it does have a popular appeal among a wide cross-section of Canadian producers. For example, the Canadian Federation of Agriculture has advocated equality for agriculture as their major policy objective. In an address to the Ontario Federation of Agriculture, the President of the Canadian Federation stated:

> ...the Canadian Federation of Agriculture has advocated as one of its foremost objectives a national farm policy and program which would enable those engaged in agriculture to establish and maintain themselves on a basis of equality with other major groups in the nation. This is another way of saying that the major aim of the Canadian Federation of Agriculture is parity for the farmer—parity of income and standard of living and status in our national economy.[3]

Various programs in the past have been initiated with the objective of maintaining farm incomes at a relatively high level. The discussion of such policies can conveniently be divided into three parts: Production policies, pricing and income policies, and marketing policies.

The major aim of production policies has been to increase the efficiency of resource use in the agricultural industry. The basic philos-

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[3] Parity for Canadian Farmers, Address by H. H. Hannam, President, Canadian Federation of Agriculture, Delivered at the Annual Meeting of the Ontario Federation of Agriculture, King Edward Hotel, Toronto, November 7, 1956.

ophy behind such policies is that increased production efficiency in agri-culture necessarily leads to higher farm incomes. Consequently, in North America during the past few decades, a considerable amount of money has been spent on agricultural research and extension work in the physical and biological sciences, with the belief that farm incomes would be increased. There is no doubt that many farmers, particularly those classed as innovators, have benefitted directly from the increased production efficiency of their industry. On the other hand, one cannot overlook the fact that a signif-icant part of the benefits of increased production efficiency in agricul-ture has been passed on to the food consumer in the form of lower food prices as a result of the competitive structure of the agricultural industry and the inelastic demand for food.[4] To a substantial degree, the benefits of technological progress in agriculture may be found on the table of the food consumer rather than in the pocketbook of the farmer.

The pricing and income policies in Canada mainly include various price support acts and acreage payments. The Agricultural Price Support Act of 1944 was the first systematic attempt to place a floor under farm prices in Canada. The Act established the broad principle that prices for farm products should be set so as to provide adequate and stable returns to agriculture. This Act was subsequently amended in 1950, and in 1958 it was superseded by the Agricultural Stabilization Act. The objective of the

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[4]For further discussion on this issue, see K. E. Boulding, Economic Analysis and Agricultural Policy, op. cit. pp. 196-197.

1958 Act was to establish a flexible agricultural price support system that guaranteed farmers collectively a pre-fixed yearly price for many farm products. The Act established minimum price support for nine commodities at not less than 80 per cent of the average price during the preceding ten-year period. Prices could be supported under the Act by any one of three methods: Outright purchase of the product, granting of a deficiency payment, and making a fixed payment to the producer. The method most commonly used under the Stabilization Act has been deficiency payments, although the other two methods have also been employed to some degree. These price support programs, though originally designed to provide adequate returns to farmers, have failed to bring about a state of comparable returns, mainly because, in the long run, the productivity of the worker does not move at the same rate in the two sectors. Support programs, on the one hand, lead to a situation where agriculture produces in excess of the effective demand, and, on the other hand, they impede the process of labor migration. Furthermore, these programs have failed to solve the income problems of small producers. The latter result from the fact that a small farmer is not in a position to adjust to the changing technology as quickly as a large producer can. Consequently, he does not benefit as much from price supports because of his lower volume of production.

Marketing policies included the establishment of co-operatives and federal and provincial marketing boards. The major objective of these policies had been that of providing bargaining power to agriculture to offset that in other sectors of the economy from which farmers buy or to which they sell.

A general evaluation of these policies leads one to conclude that there seems to be a lack of consistency among all the programs. Some programs have attempted to raise the incomes in the farm sector. However, the present set of policies does not appear to attain the desired objective of raising farm incomes to the point where they are comparable with incomes of other sectors of the economy. In the following section an attempt will be made to suggest some guidelines for agricultural policies in general.

As indicated earlier, the magnitude of the income disparity differs according to the underlying policy objective which a comparison implies. As a matter of fact, the income differentials, as indicated by comparison for welfare, were lower than those indicated by the efficiency comparisons. Policy formulation should recognize the distinction between the two policy objectives, not only because they are two completely different concepts, but also because, in many instances, they are in conflict. For example, a program of direct compensatory payments is undoubtedly desirable from the standpoint of farmers' well-being, but whether it would really improve the efficiency of the resource use in the industry is debatable.

It was also indicated that the basic problem of the agricultural industry is that of a lack of adjustment of resources. Agriculture maintains a state of overproduction due to a surplus of resources, particularly human resources. The excess of resources which has perpetuated the problem of low farm incomes arises due to the relative fixity of the factors of production in agriculture and the slower rate of increase in the demand for farm products. Under this situation, the obvious way to

improve the farm income problem would be to enhance resource mobility. It has been argued that resource mobility is not a perfect solution to the farm income problem because, if one accepts the fact that agricultural resources are underemployed, then mobility of resources will not decrease the overall production of agriculture. Due to rapid technological changes output of the agricultural industry may tend to increase, even after a sufficient transfer of resources has taken place. However, the role of labor mobility in enhancing the farm income levels is undebatable because at least three arguments may be listed in support of labor mobility as a solution of the low farm income problem: (1) the same total income will now be shared by a less number of people, thus income per capita will be increased, (2) as the farmers staying in agriculture will have ample opportunities to expand their size of farm business, operation of economies of increased scale may bring about higher net incomes and (3) if the size of the farm business is expanded to a degree whereby a farmer becomes very conscious of the prices he receives, the tendency in the industry will likely be towards contracting the output,[5] resulting in an increase in the farm price level.

Policies to promote the mobility of resources, particularly human resources, may recognize many facets of the problem. This study indicated that the amount of capital investment on farms, and the education of farm

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[5] This would occur where the marginal utility of leisure becomes greater than that of money income.

people were the most important factors which influence the type of adjustment an individual may pursue. Lack of knowledge of alternative non-farm employment, and preference function for farm living may also contribute some further impediments to the adjustment of the volume and utilization of human resources in the agricultural industry. Programs to provide intensive training for farm youths and to supply farmers with job information relating to the rest of the economy would facilitate the labor mobility process.

The study also indicated that the intra-agricultural income disparity was greater than the inter-industrial income disparity. Farm incomes varied on units of different sizes and with different capital investments. A fruitful solution to the low farm income problem can only be obtained if proper recognition is made of the problems associated with the different categories of farmers in the various provinces. It would seem imperative that detailed studies of particular regions are needed if a proper foundation is to be laid for farm income policies in Canada.

Some of the policy measures, such as labor mobility, may be effective only in the long run. In the short run the approach for solving the lower farm income problem should be that which places more emphasis on programs which increase farm incomes directly. Such measures will be very effective in areas where the problem of the farm sector is that of a chronic low income level. Programs such as crop insurance, proper credit policies (especially those which assist beginning farmers to arrange for

their credit needs) will lead to better results in reducing the intra-agricultural income disparity. Direct transfer payments will also serve as a convenient device to solve the income problem of small producers.

CHAPTER X

SUMMARY AND CONCLUSION

Summary:- Whether a farm worker receives an income comparable to a non-
farm worker has been a long standing issue in Canada. The study was con-
ducted to collect reliable information on the relative incomes of farm
people in Canada during the period 1926-1961.

The study was aimed primarily at measuring the nature of disparity
between farm and non-farm incomes. In addition, it included an investi-
gation into the factors affecting the size of income disparity between the
two sectors, and the relevant considerations which should be taken into
account when making a valid comparison of incomes.

The methodology used in the comparison of farm and non-farm incomes
in this study makes a significant advance on the existing studies of the
topic. The whole set of income comparisons in this study was broadly
divided into two major categories: (1) Comparisons which can be used for
policies for resource use efficiency purposes, and (2) those which can be
used for policies aimed at welfare comparisons. These criteria of policy
making were deduced from the role of incomes in an economic system. In-
come plays two roles in an economy: One of giving incentives to resource
owners, and the other of providing purchasing power in the hands of con-
sumers. The first role provides the basis whereby the allocation of re-
sources in the economy can be evaluated; and it is termed the efficiency
aspect of income distribution. The second role as it deals with the dis-
tribution of incomes among the consuming units is defined as the welfare

aspect of incomes.

The present investigation was guided by six hypotheses. The first hypothesis was formulated in two parts: (a) Farm incomes are lower than non-farm incomes, but at least a part of this income disparity is due to certain basic structural and technical differences in the two sectors. (b) This income disparity would be reduced if proper adjustments for these differences were made.

Comparison of incomes for resource use efficiency purposes was made by dividing the total labor force of a sector into two exclusive categories of workers: Wage earners, and self-employed workers. Incomes in this context measured the return on labor only. But while comparing the incomes of the farm and non-farm sectors for welfare purposes, the approach of income accounting was changed to measure the income of individuals as consumers.

Table LXX summarizes the results obtained by different income comparisons made in this study to compare the efficiency of resource use and welfare levels of farm people. For example, by using the efficiency criterion, farm incomes during the period 1941-61 varied between 21.9 per cent and 54.9 per cent of the non-farm incomes. (Comparison X). This ratio was 33.2 per cent during 1941-45, but due to good crop years during 1951-55 rose as high as 54.9 per cent. However, in the period following it, farm incomes tended to fall, with a result the ratio dropped down to 21.9 per cent. Similar variations are also met in the case of incomes compared for welfare purposes. Comparison XIV in Table LXX indicates that farm incomes ranged from 74.0 per cent to 82.8 per cent of non-farm

TABLE I

RATIO OF FARM AND NON-FARM INCOMES IN CANADA, ACCORI

( F/NF )

| Period | I[a] | II | III | IV | V | VI | VII | VIII | IX |
|--------|------|------|------|------|------|------|------|------|------|
| | | | | Income Comparisons for Efficiency Purposes | | | | | |
| | | | | | Per cent | | | | |
| 1941-45 | 29.6 | 37.9 | 24.8 | 31.7 | 28.7 | 36.7 | 37.0 | 47.6 | 41.0 |
| 1946-50 | 32.9 | 42.1 | 29.9 | 38.3 | 36.4 | 46.6 | 32.4 | 41.5 | 33.6 |
| 1951-55 | 34.8 | 44.5 | 31.5 | 40.3 | 46.5 | 59.5 | 35.8 | 45.8 | 47.6 |
| 1956-60 | 25.0 | 32.0 | 29.8 | 38.1 | 27.5 | 35.2 | 35.8 | 45.8 | 51.1 |
| 1961 | 18.2 | 23.3 | 28.6 | 36.6 | 17.8 | 22.8 | 26.2 | 33.5 | 43.8 |

[a] Comparisons for Efficiency Purposes:

I Labor Product of Total Workers per NME

II   "     "     "     "     "   per NMU

III Wage Earnings per NME

IV   "     "   per NMU

V Self-employed Workers Incomes per NME

VI   "     "     "     "   per NMU

VII 1949 Dollars Income of Total Workers per NME

VIII   "     "     "     "     "     "   per NMU

IX   "     "     "     "     "     "   per NME by all item de

X Farm Incomes Adjusted for Part-time Workers per NME

XI Income per Unpaid Worker from all Employment per NME

Source: Derived from Tables XVI, DVII, XIX, XXXI, XXXV, XXXVII, XXXVII

incomes. This ratio was 78.1 per cent during 1941-45, with a rising trend up to 82.8 during 1951-55 (mainly because of higher incomes from farming), but again fell down to 74.0 in 1961. Tendencies similar to these comparisons were indicated by all other comparisons.

During the post-depression period the ratio of farm:non-farm incomes for total workers varied between 18.2 per cent and 34.8 per cent on per normalized man equivalent (NME) basis (and between 23.3 per cent and 44.5 per cent on per normalized man unit, NMU, basis). (Comparisons I and II.) But when the incomes of the workers in the two sectors were compared according to the type of workers, the ratio of their incomes per NME was between 24.8 per cent and 31.5 per cent for wage earners, and between 17.8 per cent and 40.3 per cent for self-employed workers. (Comparisons III and IV.)

The comparison of incomes according to type of workers does not show the real disparity between the farm and non-farm sectors. The disparity as shown by comparisons I to V is not real because it is biased by the difference in the factors such as price movement and relative period of employment of workers in the two sectors. To adjust the incomes for differences in the price over time as well as for the products of two sectors, constant (1949) dollar income of total workers was calculated. The ratio of this income per NME ranged from 26.2 per cent to 35.8 per cent when the constant dollar farm income was calculated by deflating the net income only. (Comparison VII.) But when gross income and production expenses were deflated simultaneously the ratio of constant dollar income varied between 33.6 per cent and 51.1 per cent during 1941-61. (Comparison

VIII.)

The farm and non-farm personal disposable income per family varied between 77.6 per cent and 104.9 per cent during 1941-61, but on per normalized adult unit (NAU) basis it varied between 58.1 per cent and 69.3 per cent for the same period. (Comparisons XIII and XV.)

Thus, on the basis of the evidence it can be stated that disparity of incomes differs when comparisons are made according to the policy objectives, types of workers, and whether certain adjustments for the differences of various factors in the two sectors have been made or not. The evidence confirms the validity of parts of the first hypothesis.

The second hypothesis stated that intra-agricultural disparity in incomes is greater than inter-industrial income disparity. Intra-agricultural income disparity was investigated by classifying the farms according to regions, value of product sold, size of capital investment and type of enterprise. Disparity of incomes was greater in the case of farms classified according to regions. Farm total labor income per NME in different provinces varied between $325 and $1653 (during the period 1941-61). The highest income was obtained by workers in the Prairies; those in the Maritime region were the lowest paid. Non-farm total labor income per NME, on the other hand, varied between $1577 and $5333 during the same period. The farm and non-farm incomes in different regions had a similar pattern. The correlation coefficient between these incomes during the period 1941-61 was found to be 0.728 (significant at five per cent level). Net farm incomes on various sizes of farms differed tremendously from -$194 on the farms having a sale value of products between

zero and $999, to $8545 per year on farms selling products worth more than $25,000. To test the hypothesis, analysis of variance followed by the estimation of the coefficient of variation was employed. During the post-depression (1941-61) period the coefficient of variation for intra-agricultural incomes was 186.2 per cent of the mean, as against 160.4 per cent for the inter-industrial incomes. The tendency of the variability in agricultural incomes to exceed that in inter-industrial incomes for different periods proved this hypothesis.

The third hypothesis was that capital investment on farms can be postulated as one of the important factors affecting regional income levels. This hypothesis was tested by fitting a regression function between the level of net income (Y) and value of farm capital (X), and the results obtained

$$\hat{Y} = \$174 + 0.04189 \, X$$

$$r^2 = 0.996**$$

(** Significant at one per cent level)

supported this hypothesis.

The fourth hypothesis was that the relative movements of farm and non-farm prices are responsible for a part of the income disparity between the farm and non-farm sectors. This was tested by deflating the net income of both sectors by their respective price indices. The ratio of the labor product of farm to non-farm sectors in constant dollars was higher than the ratio of the labor product in current dollars. This supported the hypothesis.

The fifth hypothesis was that the differences in the farm incomes of different regions can partly be explained by the fact that farmers

supplement their income from farming with that from non-farm employment. Two techniques were adopted to test this hypothesis. First, the correlation coefficient between net farm income and income from non-farm employment for different provinces was calculated. The correlation coefficient was found to be -0.2649. This indicates that the higher the net farm income, the lower is the income from non-farm employment. Second, total income of farmers was divided according to sources. It was indicated by this set of data that a higher proportion of income from farming was associated with a lower proportion of income from non-farm employment. Both of these tests support the above hypothesis.

The last hypothesis was that the disparity between farm and non-farm income has been quite small when non-income factors are considered. In this case, the income of a sector was measured as personal disposable income, and comparisons were made on per NAU basis. The ratio of farm/non-farm personal disposable income per NAU during the period 1941-61 ranged between 58.1 per cent and 69.3 per cent. When an adjustment was made in farm incomes to include the difference in the value of farm incomes in kind due to farm price and their retail price, this ratio ranged between 74.0 and 82.8 per cent for the same period. Along with the incomes, expenditure per family, housing conveniences, income distribution, working conditions, and values of farmers regarding farming as an occupation were also compared. The ratio of expenditure per farm and non-farm family during the year 1958 was 73.3 per cent. Cost of living, income distribution, and peoples' attachment to farming due to fresh air, sunshine, etc., were in favor of the farm sector. On the basis of this

analysis, it was concluded that the evidence supported this hypothesis as well.

Conclusion:- On the basis of the evidence in support of the above mention-
ed hypotheses, and other facts collected by this study, it can be concluded
that there is no single answer to the question 'What is the relative level
of income of farmers?' In many instances the answer depends upon the tech-
niques which are employed to make comparisons of farm and non-farm incomes.
The technique which should be adopted for this purpose will, in most cases,
be governed by the underlying purpose of the income comparison. Depending
upon this purpose, many considerations will need to be taken into account,
theoretically and empirically, to make a valid comparison.

Canadian agriculture during the last three decades has suffered
mainly from the following three problems regarding farm incomes:

1. A long run inequality of incomes of workers in the farm and non-
   farm sectors,

2. Wide disparity of incomes within the agricultural industry
   itself, and,

3. Short run fluctuations in incomes.

The inequality between incomes of farm and non-farm sectors during
the period 1926-61 is demonstrated by the fact that on an average farm in-
comes on an equivalent basis did not exceed the non-farm incomes. The
ratio of these incomes was always less than one hundred (when expressed as
per cent), and in most cases varied between 40 and 60 per cent. The ratio
varied for incomes of wage earners and self-employed workers. It also
varied when comparisons of farm incomes were made against an industrial

sub-group in the non-farm sector. Prices of products and the proportion
of part-time workers in the farm sector were the most important factors
affecting this income ratio, and when these factors were adjusted for their
differences in effects on the two sectors, the average efficiency of labor
use in the farm sector varied between 37.8 and 58.5 per cent of non-farm
labor use efficiency. In the context of welfare comparisons, the farm sec-
tor had certain advantages with respect to non-income items, and perhaps
in most cases these items may compensate to some degree for the differences
in incomes between farm and non-farm sectors.

Farm income varied significantly among regions, and within the same
regions on farms of different sizes with different enterprises, and having
different capital investment. Intra-agricultural income disparity even
exceeded the disparity in the incomes of different industries. A consider-
able portion of the regional disparity was found associated with differences
in farm capital.

Variability of incomes, that is fluctuations from year to year, was
one of the most disconcerting features of agricultural incomes, particular-
ly in the case of the Prairie provinces. Variability in incomes in the
various provinces was also found to be correlated with the level of in-
comes.

Thus, the problem of farm incomes in Canada is not a single prob-
lem. In some cases, it is a problem of a low level, while in some others
it is mainly a problem of instability.

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APPENDIX

APPENDIX I


GLOSSARY


CONSIDERATIONS: Empirical treatment of data in order to obtain a valid comparison of any two sets of incomes.

CONSTANT DOLLAR INCOME: Income of a sector deflated by its price index at a certain base period.

DISPARITY: Difference between two sets of incomes.

DISPOSABLE INCOME: Income of an individual or group of individuals from all the sources minus taxes paid out.

FARM SECTOR: Comprises of persons directly or indirectly dependent on agriculture as a main source of their incomes.

INCOME OF TOTAL WORKERS: Income of wage earners plus income of self-employed workers less allowance for the capital use in the latter incomes.

INCOMES OF SELF-EMPLOYED WORKERS: For the farm sector they include incomes of farm operators for labor and management, and for the non-farm sector incomes of unincorporated business and that of professional workers (net for labor only).

KIND INCOME VALUATION ADJUSTMENT (KIVA): An adjustment made in the value of farm incomes in kind for the difference between the prices of the items constituting these incomes on farm and at retail level.

MARITIMES: A region including the provinces of Prince Edward Island, Nova Scotia, and New Brunswick.

NET INCOME: Gross income including incomes in kind, and change in inventory valuation minus cost of production including depreciation.

NORMALIZED MAN EQUIVALENT (NME): A measure of the adjusted size of labor force, adjusted for number of female workers and child labor, and hours of work in a work week.

NORMALIZED MAN UNIT (NMU): A measure of the adjusted size of labor force, adjusted only for the number of female and child workers.

NORMALIZED ADULT UNIT (NAU): A measure of the adjusted number of persons in a sector, adjusted for age differences, and female:male proportions.

NF (i):  A sub-sector of the non-farm sector, classified as NF 1 -
Resources industries, NF 2 - Manufacturing industries, NF 3 - Other
secondary industries, NF 4 - Tertiary industries excluding services,
and NF 5 - Service industries.

VALID COMPARISON:  A comparison which offers a basis for public policy
formulations.

APPENDIX II

INDUSTRIAL CLASSIFICATION OF THE NON FARM SECTOR:

NF.1.   PRIMARY NATURAL RESOURCE INDUSTRIES:

1. Forestry.
2. Fishing.
3. Mining and Querrying.
4. Hunting and trapping.

NF.2   MANUFACTURING.

NF.3.   GENERAL UTILITY INDUSTRY (OTHER SECONDARY INDUSTRY)

1. Construction.
2. Transport.
3. Storage.
4. Communication.
5. Other public utilities.

NF.4   TERTIARY INDUSTRIES EXCLUDING SERVICES.

1. Wholesale trade.
2. Retail trade.
3. Finance, insurance and real estate.

NF.5   SERVICE INDUSTRIES:

APPENDIX III

RATIOS USED TO NORMALIZE THE LABOR FORCE IN FARM AND
NON-FARM SECTORS.

TABLE 1

SUMMARY OF RATIOS USED TO NORMALIZE THE TOTAL LABOR FORCE
BY INDUSTRIES IN CANADA.

| Item. | Agri. | NF 1. | NF 2. | NF 3. | NF 4. | NF 5. |
|---|---|---|---|---|---|---|
| % of child labor of total | 17.3 | 6.2 | 12.9 | 10.8 | 7.7 | 12.9 |
| Age wage differential. | .69 | .57 | .52 | .44 | .53 | .39 |
| Hours of work adjustment. | 128 | 102 | 100 | 100 | 102 | 100 |
| Female wage differential. | .89 | – | .55 | .51 | .64 | .42 |
| Proportion of women workers. | 11.4 | – | 19.2 | 44.6 | 7.5 | 51.0 |

Source:  Estimated from the data obtained from 1941, 1951 and 1961
census Volumes III and V.

TABLE 2

SUMMARY OF RATIOS USED TO NORMALIZE THE SELF-EMPLOYED WORKERS
AND UNPAID NON-FARM WORKERS IN CANADA BY INDUSTRIES.

| Industries. | Proportion of female workers. S.E.[a] U.P.[b] | | Female wage diff. | Proportion of child workers. S.E.[a] and U.P.[b] | Age wage differential. |
|---|---|---|---|---|---|
| | Per cent | | | Per cent | |
| NF 1. | — | — | — | 8.4 | .57 |
| NF 2. | 11.0 | 22.0 | .55 | 36.4 | .52 |
| NF 3. | — | — | — | 13.5 | .53 |
| NF 4. | 8.0 | 18.0 | .51 | 9.5 | .44 |
| NF 5. | 33.0 | 85.0 | .42 | 18.2 | .39 |

[a] Self employed workers,    [b] Unpaid workers.

Source:  Estimated from the data obtained from 1941, 1951 and
1961 census Volumes III and V.

TABLE 3

SUMMARY OF THE RATIOS USED TO NORMALIZE THE NON-FARM AND FARM
PROVINCIAL LABOR FORCE, IN CANADA.

| Item. | PEI | NS | NB | MAR | QUE | ONT | MAN | SAS | ALB | PRA | BC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NON-FARM LABOR | | | | | | | | | | | |
| Female workers wage differential. | – | – | – | .55 | .45 | .59 | – | – | – | .51 | .60 |
| Proportion of child. | – | – | – | 12.0 | 13.0 | 10.0 | – | – | – | 13.0 | 8.0 |
| Age wage differential. | – | – | – | .56 | .47 | .52 | – | – | – | .49 | .53 |
| AGRICULTURE: | | | | | | | | | | | |
| Female workers wage differential. | .82 | .69 | .74 | – | .50 | .90 | .66 | .68 | .69 | – | .62 |
| MANUFACTURING. | | | | | | | | | | | |
| Female workers wage differential. | – | – | – | .53 | .56 | .53 | – | – | – | .51 | .49 |
| Proportion of child. | – | – | – | 12.0 | 13.0 | 10.0 | – | – | – | 13.0 | 8.0 |

Source: Estimated from the data obtained from 1941, 1951 and
1961 census Volumes III and V.

APPENDIX IV

ESTIMATION OF PAYMENTS MADE TO FARM SECTOR
UNDER VARIOUS WELFARE PROGRAMS:

The discussion of the method used in the estimation of the payments made to the farm sector through welfare programs is made by dividing the total payments according to the level of government at which they have been paid, that is, payments made under (A) Federal Government programs, (B) Federal - Provincial Programs, and (C) Provincial programs.

A. FEDERAL GOVERNMENT PROGRAMS:

1. Family Allowances: The farm share of family allowances was obtained by multiplying the total number of recipients by the amount paid per person. The number of total recipients in farm sector was the outcome of child population on farms and the extent of coverage. On the assumption that no discrimination was made in covering the farm sector, the proportion of total child number and the number receiving these allowances was calculated for the census years. The interpolation of this extent of coverage and the number of children on farms, was used to estimate the number of recipient during the inter-census years. From D.B.S.- Canada Year Books, the amount paid per recipient was obtained for the period 1945-61.

2. Old Age Securities and Pensions: These payments are made to every person over 70 years of age under the provision of Old Age Pension Act 1927 and Old Age Security Act 1952. The technique of their

estimation was basically the same as observed in case of family
allowances' estimation. The amount received per person per month and
the total number of beneficiaries were taken from the Dept. of National
Health and Welfare Publication, Report on the administration of old age
pensions and pensions for the Blind persons in Canada. From the same
publication proportion of farm applications approved to the total was
calculated; which when multiplied with the total recipient gave the
number of farm beneficiaries. For old age securities, Canada Year Book
was consulted. The interpolation of coverage and farm population over
70 years of age was based on the census figures. The product of the
two led to the total number of beneficiaries which when multiplied with
the amount per person gave the total farm share for the years 1927-61.

3. Blind Persons Pensions: For these estimates the 'Report of
the Administration of old age pensions and pensions for blind persons'
was consulted, to take the data on the amount paid per person, total
recipients and farm applications approved to total. The ratio of farm
over total applications approved, when multiplied with total recipients,
gave the recipients on farms, while the latter after being multiplied
with the amount paid per person led to total farm share during 1937-51.

4. Unemployment Insurance: From the Annual report on Benefit
periods established and terminated under the Unemployment Insurace Act,
(Labor Division, D.B.S.) total farm weeks paid as regular benefit and
seasonal benefit, and amount paid per week for them were taken. Total
farm insurance benefit was the end product of all these.

The sum of the share of farmers out of these programs gave the
total transfer payments to farmers from the Federal Government.

B. FEDERAL — PROVINCIAL PROGRAMS:

1. Allowances for Disabled Persons: The report on the administration of allowances for disabled persons in Canada, Department of National Health and Welfare, was consulted to get the necessary data for the method followed in the estimation of blind persons' pensions. The figure obtained by this method in this case was further divided by the proportion of the shares of Federal Government to total.

2. Allowances for Blind Persons: With the help of the report on the administration of allowances for blind persons in Canada and by using the same method, these allowances were estimated.

3. Old-Age Assistance: The basic data in this case was furnished by the Administration report of old age assistance, and its method of estimation was the same as that for other allowance.

4. Unemployment Assistance: Because of diversities in the Provincial laws, its computation was made by Provinces. In general the technique consisted of the following steps: The total number of un-employed persons in the province were taken from the monthly labor force survey estimates for the year 1956 to 1961. The corresponding figure of beneficiaries were taken from the Canada Year Books, the ratio of the two gave the extent of coverage. Then, the size of unemployed per-sons on farms was also estimated by the census figures. The farm beneficiaries were obtained after multiplying the unemployed persons by the extent of coverage. This figure when multiplied with the payment made per person gave the farm sector's share for the years 1956-61.

C. PROVINCIAL PROGRAMS:

The only program in this category, for which information was available, was the mother allowances, whose computation was also made by provinces. In general the method was as follows: The farms share of mother allowances was arrived at by multiplying the number of needy mothers assisted on farms with the amount paid per beneficiary. The number of needy mothers assisted on farms were derived from the 1951 and 1961 censuses. A needy mother was defined as the one who is a head of a family and is either a widow or a divorced lady, having no earning member. The data from the census led to the computation of per centage of farm families to total, the per centage of needy mothers, and the proportion of families covered. The covered needy farm families were arrived at by multiplying the total families with the per centage of farm families and the extent of coverage. These computations for the census years were interpolated by the straight line method and the total figures were arrived at for the years 1926-61 by summing that for each province.

The contribution of all these levels of government payments to the total transfer payments to farmers has been shown in the following table.

TABLE 4

GOVERNMENT TRANSFER PAYMENTS TO FARMERS BY SOURCES AND LEVELS
OF GOVERNMENT DURING 1941-61 IN CANADA.

(Average of each year.)
Million dollars.

| Period. | Fam. Allo. | FEDERAL | | | | | FED-PROVINCIAL | | | | | Local | Total |
| | | Old age secur. | Bli. pens. | Unem. Ins. | Total Fed. | Old age ass. | Bli. pens. | Disab. allow. | Unem. ass. | Total fe-pro. | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1941-45 | 10.9 | 7.5 | .2 | – | 18.6 | – | – | – | – | – | 1.4 | 20.0 |
| 1946-50 | 65.6 | 13.9 | .6 | .2 | 80.2 | – | – | – | – | – | 2.0 | 82.2 |
| 1951-55 | 72.2 | 35.2 | .1 | .4 | 107.9 | 6.3 | .5 | .4 | – | 7.2 | 2.6 | 117.7 |
| 1956-60 | 68.2 | 50.1 | – | 1.6 | 119.9 | 8.5 | .7 | 3.4 | .5 | 13.1 | 3.8 | 136.8 |
| 1961. | 65.5 | 53.1 | – | 2.0 | 120.6 | 3.9 | .6 | 5.5 | 1.5 | 11.5 | 5.4 | 137.5 |

Source: Estimation based on information contained in the publications of Department of Health and Welfare, Dominion Bureau of Statistics.

APPENDIX V

## INDICATORS OF SIZE OF CANADIAN AGRICULTURE
## 1926-61.

| | Contribution of Agriculture to Total | | | |
|---|---|---|---|---|
| Year | Gross Dom. Product | Value of Exports. | Net Value of Production | Labor Force |
| | | (per centage of total) | | |
| 1926 | 18.1 | 60.5 | – | 34.9 |
| 1927 | 17.2 | 59.3 | – | 34.3 |
| 1928 | 16.5 | 58.7 | – | 33.3 |
| 1929 | 12.3 | 59.0 | – | 32.0 |
| 1930 | 11.6 | 46.1 | – | 31.2 |
| 1931 | 7.9 | – | – | 32.1 |
| 1932 | 9.4 | – | – | 34.6 |
| 1933 | 8.8 | 48.8 | – | 34.8 |
| 1934 | 10.6 | 42.2 | – | 33.4 |
| 1935 | 11.1 | 40.8 | 20.3 | 33.1 |
| 1936 | 9.7 | 40.4 | 18.9 | 32.3 |
| 1937 | 10.3 | 45.2 | 18.3 | 31.4 |
| 1938 | 11.5 | 34.7 | 20.4 | 32.5 |
| 1939 | 11.1 | 32.7 | 21.3 | 32.5 |
| 1940 | 11.4 | 32.5 | 19.5 | 30.5 |
| 1941 | 9.1 | 30.1 | 15.7 | 27.6 |
| 1942 | 12.4 | 21.8 | 21.3 | 24.5 |
| 1943 | 9.6 | 26.0 | 16.8 | 23.8 |
| 1944 | 12.4 | 32.3 | 21.3 | 24.1 |
| 1945 | 10.7 | 37.8 | 20.3 | 24.7 |
| 1946 | 12.3 | 40.5 | 23.1 | 25.3 |
| 1947 | 12.2 | 36.5 | 20.1 | 23.2 |
| 1948 | 12.4 | 35.0 | 20.0 | 22.4 |
| 1949 | 10.7 | 37.1 | 17.5 | 21.8 |
| 1950 | 10.4 | 32.1 | 17.2 | 20.4 |
| 1951 | 12.4 | 31.7 | 18.2 | 18.4 |
| 1952 | 11.3 | 33.0 | 18.6 | 17.1 |
| 1953 | 9.2 | 35.0 | 15.4 | 16.4 |
| 1954 | 6.7 | 27.6 | 11.1 | 16.8 |
| 1955 | 7.3 | 23.7 | 12.3 | 15.3 |
| 1956 | 7.1 | 25.8 | 12.0 | 13.8 |
| 1957 | 5.4 | 23.5 | 9.4 | 13.0 |
| 1958 | 5.9 | 26.6 | 10.6 | 12.5 |
| 1959 | 5.3 | 24.4 | 9.9 | 11.8 |
| 1960 | 5.4 | 21.9 | 10.7 | 11.3 |
| 1961 | 4.6 | 22.0 | 8.7 | 11.1 |

APPENDIX VI

FACTORS AFFECTING NON-FARM INTER-INDUSTRIAL WAGE DISPARITY.

TABLE 1

GROWTH OF LABOR UNIONS' MEMBERSHIP IN CANADA, 1931-61.

| Period | Union Members. 000, # | % of the total non-farm paid workers. | Industrial composite wage rate, weekly in $ |
|--------|-----------------------|---------------------------------------|---------------------------------------------|
| 1931-35 | 288 | 15.2 | – |
| 1936-40 | 362 | 17.3 | – |
| 1941-45 | 628 | 22.1 | 29.83 |
| 1946-50 | 932 | 28.9 | 39.35 |
| 1951-55 | 1182 | 31.1 | 56.41 |
| 1956-60 | 1422 | 31.6 | 70.42 |
| 1961 | 1447 | 30.1 | 78.11 |

Source:  D.B.S., Canada Year Book, 1962, pp. 719, 746.

TABLE 2

SUPPLEMENTARY LABOR INCOME – AS PER CENTAGE OF TOTAL WAGE EARNER'S

INCOME AND PER WORKER. 1951-58.

| Industry | Supp. inco. as % to total during | | Supp. inco. per worker per year during | |
| | 1951-55 | 1956-58 | 1951-55 | 1956-58 |
| | | | Dollars | |
|---|---|---|---|---|
| NF 1. | 4.8 | 5.8 | 234 | 298 |
| NF 2. | 4.3 | 3.9 | 134 | 139 |
| NF 3. | 3.6 | 3.6 | 109 | 132 |
| NF 4. | 3.6 | 3.7 | 115 | 142 |
| NF 5. | 4.2 | 5.5 | 105 | 164 |

Source: D.B.S., Labor income, 1926-58, (Estimated from its tables.) Queen's Printers, Ottawa.

TABLE 3

DISTRIBUTION OF FATAL ACCIDENTS BY INDUSTRIES, 1951-60

| Industry | Total accidents as % of the total during | | Per 100 workers total accidents during | |
| | 1951-55 | 1956-60 | 1951-55 | 1956-60 |
|---|---|---|---|---|
| NF 1. | 29.2 | 29.6 | 2.51 | 2.24 |
| NF 2. | 16.7 | 14.5 | .18 | .14 |
| NF 3. | 35.6 | 38.3 | .66 | .54 |
| NF 4. | 4.1 | 4.2 | .08 | .07 |
| NF 5. | 6.9 | 6.3 | .09 | .06 |

Sources: Estimated from the D.B.S., Canada Year Books. (For the years 1951 to 1960).

APPENDIX VII

## INDEX OF VARIOUS INPUTS PER UNIT OF OUTPUT (1949=100) IN

## CANADA, 1926-61. (CONSTANT DOLLAR VALUE 1935-39=100)

| Year | Hired Labor | Feed and Seed. | Fertilizer and Lime. | Electric Power. | Machinary. |
|------|------|------|------|------|------|
| 1926 | 250.8 | 52.2 | 25.0 | – | 49.6 |
| 1927 | 251.6 | 49.7 | 23.0 | – | 55.7 |
| 1928 | 222.8 | 48.3 | 25.8 | – | 56.3 |
| 1929 | 259.3 | 52.1 | 38.8 | – | 69.8 |
| 1930 | 304.8 | 70.7 | 64.8 | – | 81.4 |
| 1931 | 276.3 | 62.5 | 52.7 | – | 67.9 |
| 1932 | 268.9 | 50.5 | 32.9 | – | 59.9 |
| 1933 | 284.2 | 46.5 | 30.8 | – | 59.5 |
| 1934 | 288.0 | 48.1 | 37.2 | – | 63.3 |
| 1935 | 299.0 | 52.8 | 41.6 | – | 67.8 |
| 1936 | 297.1 | 58.1 | 44.4 | – | 68.0 |
| 1937 | 326.6 | 64.5 | 62.1 | – | 78.1 |
| 1938 | 290.3 | 66.2 | 59.7 | – | 75.3 |
| 1939 | 234.4 | 69.2 | 51.0 | – | 70.2 |
| 1940 | 233.0 | 65.0 | 55.3 | – | 75.9 |
| 1941 | 193.4 | 69.2 | 50.0 | 37.9 | 74.4 |
| 1942 | 159.8 | 89.5 | 59.2 | 39.5 | 75.6 |
| 1943 | 125.1 | 115.1 | 63.2 | 35.8 | 70.7 |
| 1944 | 97.1 | 92.1 | 56.0 | 34.0 | 62.9 |
| 1945 | 110.3 | 116.0 | 78.9 | 50.8 | 83.9 |
| 1946 | 116.3 | 137.3 | 85.9 | 76.1 | 87.7 |
| 1947 | 111.2 | 154.1 | 91.9 | 81.1 | 88.2 |
| 1948 | 101.1 | 110.6 | 91.8 | 102.8 | 94.4 |
| 1949 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1950 | 128.1 | 112.0 | 121.4 | 162.0 | 136.5 |
| 1951 | 107.2 | 95.8 | 106.5 | 165.4 | 123.4 |
| 1952 | 100.8 | 89.0 | 93.6 | 171.5 | 116.3 |
| 1953 | 89.0 | 72.7 | 95.4 | 179.0 | 109.0 |
| 1954 | 97.6 | 101.6 | 106.6 | 219.6 | 127.4 |
| 1955 | 102.6 | 101.1 | 105.8 | 266.4 | 136.2 |
| 1956 | 90.7 | 106.6 | 96.7 | 257.9 | 129.2 |
| 1957 | 86.2 | 101.8 | 98.7 | 285.9 | 131.7 |
| 1958 | 86.8 | 113.8 | 105.6 | 311.7 | 134.9 |
| 1959 | 84.7 | 118.2 | 115.8 | 327.6 | 137.0 |
| 1960 | 87.3 | 109.1 | 119.1 | 350.8 | 141.1 |
| 1961 | 84.2 | 117.9 | 132.0 | 352.9 | 139.4 |

## FARM AND NON-FARM LABOUR INCOME PER NME

### ACCORDING TO STATUS OF WORKERS

| Year | Total Worker's Income | | | Hired Laborers' Income | | | Self-Employed Workers' Income | | |
|---|---|---|---|---|---|---|---|---|---|
| | Farm Dollars | Non Farm | Ratio F:NF % | Farm Dollars | Non Farm | Ratio F:NF % | Farm Dollars | Non Farm | Ratio F:NF % |
| 1926 | 306 | 1504 | 20.3 | — | 1456 | — | — | 1895 | — |
| 1927 | 311 | 1523 | 20.4 | — | 1531 | — | — | 1491 | — |
| 1928 | 326 | 1581 | 20.6 | — | 1655 | — | — | 1235 | — |
| 1929 | 150 | 1601 | 9.4 | — | 1777 | — | — | 976 | — |
| 1930 | +152 | 1529 | 9.9 | — | 1669 | — | — | 945 | — |
| 1931 | - 49 | 1356 | -3.6 | 307 | 1436 | 21.3 | -309 | 881 | -35.1 |
| 1932 | - 20 | 1227 | -1.6 | 243 | 1281 | 18.9 | -212 | 691 | -30.6 |
| 1933 | - 35 | 1152 | -3.0 | 245 | 1317 | 18.6 | -216 | 449 | -48.1 |
| 1934 | + 45 | 1090 | 4.1 | 252 | 1218 | 20.6 | - 83 | 539 | -15.3 |
| 1935 | 77 | 1167 | 6.6 | 275 | 1301 | 21.1 | - 20 | 610 | - 3.2 |
| 1936 | 83 | 1214 | 6.8 | 295 | 1358 | 21.7 | - 17 | 635 | - 2.7 |
| 1937 | 141 | 1325 | 10.6 | 319 | 1532 | 20.8 | + 71 | 606 | 11.7 |
| 1938 | 186 | 1358 | 13.7 | 326 | 1462 | 22.3 | 144 | 853 | 16.9 |
| 1939 | 190 | 1349 | 14.1 | 334 | 1525 | 21.9 | 143 | 695 | 20.5 |
| 1940 | 272 | 1475 | 18.4 | 359 | 1620 | 22.2 | 254 | 889 | 28.5 |
| 1941 | 292 | 1678 | 17.4 | 377 | 1696 | 22.2 | 257 | 1566 | 16.4 |
| 1942 | 677 | 1819 | 37.2 | 432 | 1836 | 23.5 | 872 | 1716 | 50.8 |
| 1943 | 509 | 1993 | 25.5 | 486 | 1982 | 24.5 | 492 | 2093 | 23.5 |
| 1944 | 784 | 2086 | 37.6 | 527 | 2026 | 26.0 | 921 | 2632 | 34.9 |
| 1945 | 633 | 2168 | 29.1 | 559 | 2070 | 27.0 | 631 | 3056 | 20.6 |
| 1946 | 713 | 2226 | 32.0 | 641 | 2200 | 29.1 | 696 | 2362 | 29.4 |
| 1947 | 791 | 2463 | 32.1 | 855 | 2442 | 35.0 | 779 | 2281 | 34.1 |
| 1948 | 1012 | 2728 | 37.1 | 775 | 2769 | 27.9 | 1114 | 2449 | 45.4 |
| 1949 | 894 | 2959 | 30.2 | 736 | 3007 | 24.5 | 914 | 2637 | 34.6 |
| 1950 | 995 | 2996 | 33.2 | 1021 | 3035 | 33.6 | 1017 | 2698 | 37.6 |
| 1951 | 1523 | 3157 | 48.2 | 1244 | 3279 | 37.9 | 1725 | 2737 | 63.0 |
| 1952 | 1670 | 3530 | 47.3 | 1219 | 3623 | 33.6 | 1909 | 2792 | 68.4 |
| 1953 | 1355 | 3843 | 35.2 | 1195 | 3953 | 30.2 | 1464 | 2990 | 48.9 |
| 1954 | 730 | 3824 | 19.1 | 1019 | 3940 | 25.8 | 582 | 2870 | 20.3 |
| 1955 | 1093 | 3884 | 28.1 | 1248 | 4024 | 31.0 | 1083 | 3159 | 34.2 |
| 1956 | 1306 | 4298 | 30.4 | 1334 | 4374 | 30.4 | 1337 | 3565 | 37.5 |
| 1957 | 874 | 4356 | 20.0 | 1430 | 4423 | 32.3 | 690 | 3800 | 18.1 |
| 1958 | 1205 | 4449 | 27.0 | 1431 | 4507 | 31.7 | 1143 | 3877 | 29.4 |
| 1959 | 1065 | 4599 | 23.1 | 1319 | 4670 | 28.2 | 944 | 3922 | 24.1 |
| 1960 | 1167 | 4711 | 24.8 | 1374 | 6798 | 28.6 | 1114 | 3857 | 28.9 |
| 1961 | 889 | 4885 | 18.2 | 1433 | 5008 | 28.6 | 674 | 3791 | 17.7 |

# APPENDIX IX

## PRICE MOVEMENT AND CONSTANT DOLLAR LABOR

## INCOME (PER NME) AND INCOME RATIO

| Year | Index of Prices Rec'd for Farm Products (1) | Index of Prices Paid for Services and Comm (2) | Col 2 Col 1 | Constant Dollar 1949 Total Workers' Income Farm $ | Non Farm $ | Ratio F:NF % | Total Workers' Current Dollar Income in Farm Sector $ | Ratio of Constant Current Dollar Farm Income |
|---|---|---|---|---|---|---|---|---|
| 1926 | 147.7 | 130.6 | .88 | 747 | 2095 | 35.6 | 306 | 2.44 |
| 1927 | 136.1 | 131.2 | .96 | 841 | 2095 | 40.1 | 311 | 2.70 |
| 1928 | 134.8 | 129.3 | .96 | 878 | 2214 | 39.6 | 326 | 2.69 |
| 1929 | 140.5 | 127.9 | .91 | 535 | 2229 | 24.0 | 150 | 3.56 |
| 1930 | 129.8 | 117.0 | .90 | 537 | 2165 | 24.8 | 152 | 3.53 |
| 1931 | 88.4 | 100.9 | 1.14 | 482 | 2166 | 22.2 | — | — |
| 1932 | 70.3 | 93.3 | 1.32 | 716 | 1926 | 37.1 | — | — |
| 1933 | 74.3 | 89.8 | 1.21 | 544 | 1993 | 27.2 | — | — |
| 1934 | 88.2 | 95.5 | 1.08 | 630 | 1857 | 33.9 | 45 | 14.00 |
| 1935 | 91.6 | 95.4 | 1.04 | 632 | 1968 | 32.1 | 77 | 8.21 |
| 1936 | 99.6 | 98.1 | .98 | 524 | 1996 | 26.2 | 83 | 6.31 |
| 1937 | 109.8 | 105.3 | .96 | 576 | 2157 | 26.7 | 141 | 4.08 |
| 1938 | 100.1 | 101.7 | 1.01 | 740 | 2183 | 33.8 | 186 | 3.97 |
| 1939 | 98.8 | 99.3 | 1.00 | 759 | 2179 | 34.8 | 190 | 3.99 |
| 1940 | 102.1 | 106.8 | 1.05 | 916 | 2286 | 40.1 | 272 | 3.36 |
| 1941 | 115.7 | 116.1 | 1.00 | 827 | 2428 | 34.0 | 292 | 2.83 |
| 1942 | 140.0 | 131.1 | .94 | 1289 | 2299 | 56.0 | 677 | 1.90 |
| 1943 | 159.8 | 143.4 | .93 | 900 | 2734 | 32.9 | 509 | 1.76 |
| 1944 | 156.1 | 148.0 | .94 | 1321 | 2755 | 47.9 | 784 | 1.69 |
| 1945 | 163.7 | 152.1 | .93 | 1009 | 2823 | 35.7 | 633 | 1.59 |
| 1946 | 171.0 | 157.0 | .92 | 1059 | 2894 | 36.5 | 713 | 1.48 |
| 1947 | 186.2 | 170.4 | .91 | 1072 | 2861 | 37.4 | 791 | 1.35 |
| 1948 | 239.5 | 197.6 | .82 | 934 | 2853 | 32.7 | 1012 | .92 |
| 1949 | 232.2 | 204.1 | .88 | 894 | 2959 | 30.2 | 894 | 1.00 |
| 1950 | 238.2 | 210.4 | .88 | 973 | 2969 | 32.7 | 995 | .97 |
| 1951 | 280.4 | 230.0 | .82 | 1139 | 2816 | 40.4 | 1523 | .75 |
| 1952 | 250.2 | 243.1 | .97 | 1635 | 2968 | 55.0 | 1670 | .98 |
| 1953 | 221.6 | 239.8 | 1.08 | 1696 | 3078 | 55.1 | 1355 | 1.25 |
| 1954 | 213.6 | 237.2 | 1.11 | 1137 | 3086 | 36.8 | 730 | 1.55 |
| 1955 | 212.6 | 238.3 | 1.12 | 1573 | 3122 | 50.4 | 1093 | 1.44 |
| 1956 | 214.2 | 247.6 | 1.16 | 1892 | 3334 | 56.7 | 1306 | 1.44 |
| 1957 | 213.6 | 255.8 | 1.19 | 1491 | 3278 | 45.4 | 874 | 1.70 |
| 1958 | 222.9 | 259.9 | 1.16 | 1708 | 3276 | 52.1 | 1205 | 1.42 |
| 1959 | 223.9 | 269.5 | 1.20 | 1632 | 3292 | 49.1 | 1065 | 1.53 |
| 1960 | 226.0 | 276.7 | 1.22 | 1737 | 3343 | 51.9 | 1167 | 1.49 |
| 1961 | 225.5 | 282.8 | 1.25 | 1493 | 3404 | 43.8 | 889 | 1.68 |

# APPENDIX X

## INCOME OF FARM OPERATORS FROM FARMING,

## OPERATIONS, BY PROVINCES, 1931 – 61

| | | | | Income per operator (dollars) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | PEI | N.S. | N.B. | QUE | ONT | MAN | SASK | ALTA | B.C. | CANADA |
| 1931 | + 27 | +138 | − 92 | −133 | − 81 | −698 | −901 | −603 | − 58 | − 395 |
| 1932 | −167 | −111 | −264 | −208 | −261 | −350 | −698 | −468 | −137 | − 271 |
| 1933 | −174 | + 42 | −107 | −178 | −218 | −433 | −817 | −574 | + 97 | − 276 |
| 1934 | −131 | 45 | − 96 | − 90 | − 15 | −201 | −569 | −123 | 87 | − 106 |
| 1935 | − 73 | 84 | + 8 | − 61 | + 29 | −178 | −148 | − 98 | 192 | − 26 |
| 1936 | + 25 | 119 | 72 | + 11 | 41 | − 49 | −284 | −223 | 284 | − 22 |
| 1937 | + 23 | 196 | 79 | 53 | 219 | 708 | −634 | +349 | 392 | + 91 |
| 1938 | − 42 | 172 | 23 | 54 | 195 | 257 | − 30 | 546 | 360 | 184 |
| 1939 | + 45 | 37 | 72 | 99 | 228 | 155 | +690 | 203 | 381 | 183 |
| 1940 | 50 | 58 | 104 | 154 | 220 | 378 | 536 | 636 | 387 | 325 |
| 1941 | 50 | 53 | 166 | 254 | 445 | 646 | 100 | 169 | 535 | 329 |
| 1942 | 342 | 170 | 336 | 376 | 975 | 1311 | 2084 | 1068 | 853 | 1116 |
| 1943 | 356 | 265 | 445 | 382 | 702 | 1159 | 583 | 423 | 1133 | 630 |
| 1944 | 212 | 255 | 423 | 426 | 910 | 1292 | 2630 | 1565 | 1161 | 1179 |
| 1945 | 265 | 62 | 366 | 239 | 786 | 788 | 1415 | 921 | 1037 | 808 |
| 1946 | 77 | 285 | 351 | 279 | 681 | 1190 | 1702 | 1380 | 818 | 891 |
| 1947 | 139 | 63 | 364 | 316 | 881 | 1423 | 1831 | 1774 | 833 | 997 |
| 1948 | 401 | 188 | 577 | 645 | 1300 | 2232 | 2139 | 2087 | 911 | 1426 |
| 1949 | 414 | 149 | 536 | 524 | 1209 | 1456 | 1975 | 1382 | 931 | 1170 |
| 1950 | 339 | 195 | 483 | 579 | 1144 | 1568 | 2718 | 1812 | 545 | 1302 |
| 1951 | 620 | 339 | 487 | 918 | 1732 | 2459 | 5213 | 3643 | 977 | 2208 |
| 1952 | 1146 | 277 | 866 | 838 | 1793 | 2475 | 6423 | 3927 | 935 | 2443 |
| 1953 | 370 | 296 | 444 | 859 | 1440 | 1178 | 4975 | 2739 | 943 | 1874 |
| 1954 | 350 | 360 | 559 | 695 | 816 | 157 | 3481 | 1142 | 630 | 745 |
| 1955 | 465 | 297 | 401 | 840 | 1115 | 865 | 3247 | 1526 | 526 | 1386 |
| 1956 | 571 | 443 | 1128 | 592 | 917 | 1761 | 4552 | 2436 | 601 | 1711 |
| 1957 | 140 | 189 | 681 | 536 | 991 | 552 | 840 | 853 | 584 | 883 |
| 1958 | 606 | 403 | 776 | 780 | 1777 | 1477 | 1279 | 1635 | 774 | 1463 |
| 1959 | 639 | 434 | 598 | 694 | 1067 | 1390 | 1745 | 1865 | 714 | 1208 |
| 1960 | 844 | 552 | 1151 | 706 | 1139 | 1281 | 3347 | 1426 | 644 | 1626 |
| 1961 | 40 | 520 | 285 | 742 | 1189 | 117 | 2268 | 1731 | 702 | 863 |

## APPENDIX XI

## FARM AND NON-FARM PERSONAL DISPOSABLE

## INCOME PER NOMALIZED ADULT UNIT

| Year | Farm Disp Income From | | | Non-Farm Disp. Income from all Sources |
| --- | --- | --- | --- | --- |
| | Farming | Non Farm Emp. | All Sources | |
| | | | D O L L A R S | |
| 1941 | 218 | 32 | 267 | 661 |
| 1942 | 432 | 37 | 487 | 690 |
| 1943 | 348 | 44 | 410 | 718 |
| 1944 | 492 | 49 | 559 | 712 |
| 1945 | 485 | 54 | 579 | 752 |
| 1946 | 482 | 59 | 581 | 877 |
| 1947 | 514 | 71 | 627 | 945 |
| 1948 | 696 | 83 | 823 | 1044 |
| 1949 | 649 | 95 | 789 | 1108 |
| 1950 | 579 | 106 | 737 | 1186 |
| 1951 | 901 | 126 | 1078 | 1262 |
| 1952 | 913 | 139 | 1099 | 1417 |
| 1953 | 805 | 154 | 1025 | 1426 |
| 1954 | 533 | 158 | 765 | 1439 |
| 1955 | 664 | 166 | 905 | 1488 |
| 1956 | 759 | 180 | 1012 | 1590 |
| 1957 | 590 | 198 | 867 | 1659 |
| 1958 | 758 | 212 | 1056 | 1719 |
| 1959 | 705 | 231 | 1027 | 1754 |
| 1960 | 799 | 245 | 1137 | 1779 |
| 1961 | 673 | 263 | 1051 | 1808 |