1946

A price policy for Canadian agriculture

Gordon L. Burton

Iowa State College

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UMI
A PRICE POLICY FOR CANADIAN AGRICULTURE

by

Gordon L. Burton

A Thesis Submitted to the Graduate Faculty for the Degree of
DOCTOR OF PHILOSOPHY
Major Subject: Agricultural Economics

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

Head of Major Department

Signature was redacted for privacy.

Dean of Graduate College

Iowa State College

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I. INTRODUCTION

A. The Purpose of Formulating a Price Policy for Canadian Agriculture

One of the two objectives of this thesis is to examine the desirability of formulating a price policy for Canadian agriculture. The question may quite properly be asked: "Why bother to formulate a policy? The demand for and the supply of the food and feed stuffs which Canadian farmers produce will determine their price." Well and good, so they will; but it is also proper to ask: "Can we formulate a price policy which will do the job any better than would the unaided forces of supply and demand, better in the sense of making a more efficient use of resources and of stabilizing the incomes of individual producers?" The scope of this thesis is, then, in the first place, the provision of an answer to this basic question. In those areas wherein we find controls to be more efficient than the unfettered forces of supply and demand, we propose to examine the suitability of certain techniques as a means of attaining the desired ends.

The primary purpose in attempting to formulate a price policy for Canadian agriculture is, then, to devise an economic framework within which people engaged in farming in Canada can better contribute to their own welfare and to the welfare of other citizens in the Dominion. Free market prices have not operated in the past in such a way as to maximize real output per unit of input. The allocative function of prices has been
impaired by fluctuations which have resulted in a high degree of uncertainty to the primary producer. Farm income has been extremely variable, resulting in alternate feast and famine for farm people through no fault of their own. We are concerned with devising means of smoothing out these peaks and troughs and of giving producers a more accurate indication of how much of what products they may produce with greatest advantage to themselves and to the economy as a whole. Any effort to make the best possible use of Canada's rich resources and to improve the standard of living of her citizens, both rural and urban, needs small excuse.

B. The Frame of Reference

Although it may appear to be self evident, it seems worth repeating that there is nothing sacred in either free enterprise or government control per se. Which one, or what combination of the two, will best accomplish the ends which we have in view? Certainly either when employed in greater or lesser degree is capable of abuse and fraught with danger. Policies tending either to the "right" or to the "left" should not be judged in a vacuum and by these political labels. Rather they should be assessed in terms of their own merits as determined by their effects, measured insofar as possible in concrete and objective terms.

It is a part of the function of government to establish the framework within which private enterprise can function to best advantage. The establishment of such controls does not necessarily involve "government enterprises" being set up; governmental controls may successfully complement an essentially free enterprise economy. We are not, therefore,
concerned here with the contentious problem of making an exact demarcation between the boundaries of private and government enterprise. We are interested rather in discovering a framework of controls for agriculture which will permit that industry to make a maximum contribution to the general welfare. Such a contribution should so far as is possible be evaluated in terms of objective criteria - the size and stability of real income, in the first instance, and the best use of resources in the second instance.

It is no longer enough to assume that individual enterprise combined with the enforcement of certain minimum "rules of the game" will result in the largest possible real income and the best distribution of that income among members of the political economy. It is a commonplace today that the lag between physical and social sciences is a dangerous one.

1 One field in which the efforts to lessen this lag offer a fair chance of success is the quantitative and causal analysis of economic processes and policies. The practical importance of economic policy is obvious; already at the present level of technology decent standards of living could probably be assured to this nation and to a considerable part of mankind if the economic problems of industrial unemployment and of agricultural depressions were solved.

Not only is it imperative that we narrow the gap between "progress" in the physical and the social sciences but it is time to take cognizance of the fact that measures of economic control either for better or for worse are already being attempted on a fairly extensive scale. During the war, ceiling and floor prices, either at wholesale or retail levels, have been in effect for all major farm products in Canada. The Winnipeg

Grain Exchange has been closed since September, 1943, and a government agency, the Canadian Wheat Board, has assumed sole control over the marketing of all commercial grains other than rye. Many of these controls are being continued into the postwar period as the performance of agriculture under control has exceeded its best efforts prior to the imposition of such control. This is not to say that this superior performance is to be attributed to the controls within which the industry now operates; nevertheless the controls deserve a share and are apt to receive a large part of the credit.

C. Canada's Commitment on Farm Product Price Supports

The government has pledged itself to establish such prices for agricultural products as will "ensure adequate and stable returns for agriculture by promoting orderly adjustment from war to peace conditions and . . . [to] endeavour to secure a fair relationship between the returns from agriculture and those from other occupations." Canada has been a participant in the now dormant international wheat agreement and has concluded long term forward contracts for some of her major export foodstuffs. Such an ambitious program deserves analysis and appraisal.

Most assessments of the problems of agriculture in Canada during the thirties were framed in terms of a shrinking market for staple exports, of the effects of the tariff upon the primary producer and of

\footnote{An Act for the Support of the Prices of Agricultural Products during the Transition from War to Peace. 8 George VI. Chapter 29. August 15, 1944. p. 180.}
an imperfectly competitive price structure in the industrial sector of the economy. Within agriculture, emphasis was placed upon the desirability of retiring marginal lands from production or their diversion to less intensive uses. Readjustments in the use of land were effected by the movement of settlers from the drier parts of the short-grass plains to new holdings in the park belt or on the podzols. Important technical improvements were made in the breeding of drought and disease resistant strains of cereals and grasses, in better cultural practices for dry-land agriculture, in the provision of feed and water for livestock and in the adoption of improved types of machinery.

These are all important problems and significant achievements. Perhaps too much emphasis has been placed upon the desirability of diversification in the "Palliser Triangle" and insufficient recognition accorded to the high comparative advantage of wheat on these soils. Although the marked dependence of the economic well being of Canadian agriculture upon the export market is well known, its reliance upon a high level of employment in the rest of the economy has not received a similar degree of acceptance. Direct assistance to farmers during the depression largely took the form of direct relief, although the government also attempted, with some success, to stabilise wheat prices through acquiring stocks of wheat and futures in periods of low prices and disposing of them when demand improved.

The imperative necessity of reorganizing the Canadian economy to meet the demands occasioned by World War II helped materially in achieving
a better distribution of the working force in moving people out of agriculture and into industry. The productive capacity of Canadian agriculture has been greatly increased. Efforts are being made to secure freer international trade relationships, to raise the levels of nutrition everywhere, and to permit producers to specialize in the output of those commodities in which they have the highest comparative advantage. Finally Canadians desire to improve their own standards of living and to prevent the economic wastes attendant upon involuntary unemployment.

It is to the specific problem of making the best use of agricultural resources and of stabilizing farm income that this thesis addresses itself. The implications of such a problem are, however, so far-reaching as to make it imperative to employ as a frame of reference the whole of the price policy affecting agriculture.

Fortunately Canada has not, as yet, committed herself by legislation to specific price objectives. Her position in this respect is in marked contrast with that of the United States. Congress has pledged the government to the support of the prices of farm products at a level of not less than ninety per cent of parity for a minimum period of two calendar years after the official declaration of the cessation of hostilities. There is still room for a good deal of flexibility, in the methods by which, and at the level at which, the prices of farm products are to be supported in Canada. Although Canada's economic and social problems differ in many important respects from those of the United States, it behooves her to study carefully the American experiment with
parity prices and the proposals of American economists.

Although no official formal proposals have been made as to the means which will be used "to secure a fair relationship between the returns from agriculture and those from other occupations" the government appears to be placing considerable emphasis upon long term export sales contracts for staple agricultural products. So far these contracts have all been with the United Kingdom. These agreements typically specify a minimum quantity which is to be delivered at a minimum price with the actual price to be determined by later negotiation. This technique was used during the war for bacon, beef, cheese, processed milk and eggs. It has now been extended to wheat. The intrinsic merits of these forward sales contracts together with their relation to other possible means of stabilising farm income are worthy of examination.
II. REVIEW OF LITERATURE

The attack on the economic problems of agriculture by American econ-
omists has in general followed two broad lines:

(a) An analysis of the relationship of agriculture to the rest of the economy. Such analyses, typically, have reference to population, nutrition, characteristics of the demand for food, relative income levels, and the function of prices in contributing to a resolution of the problems presented. Dr. T. W. Schultz has addressed himself specifically to this approach during the war years. A summary of some of his contributions are accordingly included here and a critical analysis attempted.

(b) An analysis of the specific techniques involved in achieving broad policies designed to facilitate the adjustment of agriculture. These include: a storage program for grains, subsidies, crop insurance, forward prices, surplus disposal plans, production control and marketing quotas. An examination of certain of these specific techniques is postponed to the last four chapters of this thesis which deal with their application to the Canadian economy.

A. A Diagnosis and Proposal by T. W. Schultz

Although the concept of parity prices for agriculture had been originated in the early twenties\(^1\) and incorporated into farm legislation in the United States during the thirties, economists did not apparently become aware of the shortcomings of this approach to the problem of maintaining farm income until the decade of the forties. Schultz in a paper delivered to the American Economic Association in December 1940

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undertook to set up criteria for ascertaining the economic effects of the action programs and administrative machinery vested in the United States Department of Agriculture.¹ The thesis of his paper is that action programs must be analyzed in terms of two major effects which they may be expected to have, namely: that upon the allocation of resources; and that upon the distribution of income.

Programs undertaken with a view to improving the use of resources often increased the disparity of incomes of farm families without appreciably raising those which were already low. Similarly farm programs which are designed to increase farm incomes may, because payments are tied to resource use, also increase the disparities inherent in the distribution of incomes to farm people. Schultz concludes that even full employment will not solve the problem of income allocation.

Although analytically the resource and income problems must be kept separate if both are to be solved, yet there is widespread acceptance of a system of income distribution whereby each individual "earns" what he receives as payment for the resources which he has at his command, be these resources labour, capital or managerial ability. The acceptance of this value judgment makes the "optimum" distribution of both income and resources difficult to achieve.

Schultz, following Professor Knight, insists that the economic system distributes income among resource owners in a completely amoral way.² In an enterprise economy the distribution of income is the result

of the distribution of payments for the use of resources. The
distribution of income will therefore depend upon the distribution of
the ownership of resources which include personal capacities as well
as other factors of production. If perfect competition is assumed the
price of a factor will be equal to the value of its marginal product.
Under such conditions resources are distributed in such a way as to best
satisfy the wishes of consumers as expressed by the vote of their dollars
in the market place. However an income problem may still exist if
society is not prepared to accept the income distribution resulting from
a given distribution of resources. Johnson has defined this income
problem as:1 "the divergence between the actual distribution of personal
incomes resulting from resource prices and the existing ownership of
resources, and that fulfilling adequate democratic social welfare
criteria." Even though we are able to make the best use of our
agricultural resources there would still be many farm families who do
not possess sufficient resources to yield them a standard of living
which society would regard as satisfactory.

Schults in his paper also points out that one of the surplus farm
crops is population and that urban communities reap the advantage of
the capital invested in the rearing and training of the young people
who leave the farms and find employment in cities. Some supplementary
payment might well be made to these families to compensate them for the
investment which they are making in the population of the nation.

1D. Gale Johnson. The Theory of Forward Prices for Agricultural
Products. An unpublished thesis submitted to the graduate faculty of
Many, if not most, of the ideas which Schultz was later to develop in greater detail, are included in this first appraisal of the problem. The techniques of AAA; crop production control, farm commodity loans and storage, soil and parity payments, are seen as devices applicable to the directing of resources rather than to the supplementing of farm income, for which latter purpose they were primarily intended. The administrative technique of loans and storage opens the way for effective guidance and control of agricultural production on a level at which governmental action may successfully complement the essentially free enterprise economy of American agriculture. Loan rates and storage stocks would be determined by production, marketing and consumption criteria while other methods would be relied upon to supplement inadequate farm incomes. Although not elaborated upon, forward prices are explicitly recommended; in order to guide production effectively, it is necessary to announce the loan rate well in advance.

Schultz's second major contribution to the general thesis of "quality for agriculture" is embodied in his book "Redirecting Farm Policy". This work, intended for a wider audience, amplifies many of the suggestions made in his original paper. The condition and performance of agriculture is here seen as a part of the whole economy, in the welfare of which, every citizen has a vital interest. This interest is threefold: the use of agricultural resources, the standard of living of farm families, and the distribution of the food supply. In other words, society wants a maximum of the right kinds of food and fibres; an acceptable standard

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of living for the people in agriculture, as judged by such objective
criteria as nutrition, education, clothing, housing and health; and
finally, the nation as a whole is concerned with the way in which her
food output is distributed among the people of America and of the world.

The analysis again centers around the use of prices, of prices
used as means to an end, as directives serving to allocate resources,
rather than as goals aimed at achieving some desired but undefined
income distribution. Such an analysis discredits the role assumed by
prices under the parity scheme where prices are tied to some more or
less remote historical period in the hope that a "fair" distribution
of income will result. Schults is of the opinion that a central agency,
such as the United States Department of Agriculture, equipped with the
technical personnel and necessary funds, is in a much better position to
accurately anticipate the probable future demand for farm products than
are millions of individual farmers. To leave such forecasts to those
best able to handle them will result in a much closer adjustment of
supply to demand.

If a central agency is best able to anticipate prospective supply
and demand, then the announcement of forward prices for one production
period in advance will reduce price risk and thereby enhance the prod-
cuctivity of agricultural resources. First, factors will be more nearly
allocated in such a way as to satisfy consumer demand. Secondly, each
farmer may then devote his resources to the production of the commodity
for which he is best equipped and concentrate his attentions on farming
rather than on outguessing the market. A third avenue of gain will be
that of pooling uncertainties, a part of which will cancel out leaving less for the agency to bear than had previously been borne by the aggregate of farmers.

An additional device suggested as being useful for evening out fluctuations in supplies induced by vagaries in the weather is the building up of stockpiles of durables or processed perishables. This concept of an ever-normal granary is, of course, not new, but the suggestion of tying it to a forward price scheme based upon supply and demand offers new uses to which a combination of the two techniques might be put. A second more novel suggestion is that of "equalization funds" for each of the "various clusters of farm commodities". The essence of this scheme may perhaps best be judged by a direct quotation.¹

When the demand exceeded expectations, the fund would be replenished; and when the demand fell below expected levels, the fund would be drawn upon. Conversely, for unexpected changes in supply. More specifically, when the demand for a product increased unexpectedly and the price rose higher than the forward price, an assessment would be made on each unit of the product sold to equate the difference between the forward price and the price at which the product is most efficiently distributed through the marketing and retail channels. The revenue thus obtained would go into the equalization fund. When the opposite situation arose, namely, when the demand receded unexpectedly and prices dropped below the forward price, the product would be sold at a price lower than the forward price, and the difference would be taken from the equalization fund and paid to farmers in order to give them the announced forward price.

A third technique suggested by Schults is that of directing a part of accumulated surpluses of product into other than market channels.

¹Schults, op. cit., p. 55-56. The scheme envisaged here seems in some respects to resemble that proposed by the Australian government for wheat. This plan would, for an initial period of five years, guarantee the farmer the equivalent of 80 cents American for his wheat packed in 3 bushel bags and loaded at the nearest railway terminal. Wheat for
The merits of this technique rest upon the contribution which it might make to general welfare in terms of better diets.

The positive proposals put forward by Schults as a partial solution to the income problem are the following:

(a) Income payments should not be tied to the use of productive factors but to the human agent, the farm family.

(b) Supplementary income should, if possible, be granted in kind in the form of such public services as housing, food, medical services or education rather than as cash.

(c) Supplementary payments should usually be made on equal terms to all families irrespective of their income status.

In a paper read to the Canadian Political Science Association at Montreal in May, 1944, Schults presented a preview of many of the ideas embodied in a study which he was at that time preparing for the Committee for Economic Development. This earlier paper deals with domestic consumption would be supplied at 80 cents per bushel. When the pooling agency was able to sell wheat for export at a net price exceeding 80 cents per bushel, 40% of the difference would go directly back to the grower and 60% would go into a stabilization fund. This stabilization fund would be used to maintain the guaranteed price at 80 cents at such times as the world price falls below this level. Acreage control also appears to constitute an integral part of the plan.

The similarity between this plan and that suggested by Schults lies in the accumulation of a fund from surpluses realized when world prices exceed the guaranteed minimum, which surplus is used to make up deficits when prices fall below the guaranteed minimum. The most apparent dissimilarity is to be found in the fixing of a forward price for as long as five years without regard to the supply and demand conditions for wheat. It is also apparently intended that the scheme should be tied in with an international commodity agreement for wheat. The practice of production control will be dealt with in a later section of this thesis. The administration of any plan to levy an assessment on each unit of the product sold is subject to some important difficulties. See below, Chapter VI.


with the general position in which agriculture finds itself as a part of
the wider economy. The principal determinants of this position are rates
of population growth, rates of technological improvement, and the low
income elasticity of the demand for food.¹

The fertility rates in agriculture are sufficiently high as to
permit the farm population to more than replace itself. Surplus farm
population will be compelled, therefore, to move out into the non-agri-
cultural sectors of the economy if the earnings of labour in agriculture
are to be comparable to those of labour in non-farm jobs. Economic incentives
must for this reason be such as will facilitate such movement and the prin-
cipal of these incentives is the availability of jobs in industry. Whenever
jobs have been available, farm youth has moved to the city and when jobs

¹A clear statement of the need for facilitating the movement of popu-
lation out of agriculture and into the industrial sectors of the economy
is included in a book by Professor Allan G. B. Fisher, The Clash of Progress
and Security, London, Macmillan, 1935. Here is to be found those premises
and conclusions around which Professor Schultz's analysis, as found in his
Agriculture in an Unstable Economy, is built, viz.: (a) Higher fertility
rates in agriculture (b) Rapidly improving technology in agriculture
(c) Low income elasticity of the demand for food. This analysis is sand-
witched into the following paragraph by Fisher (op. cit. p. 48):

This population trend has been observed in so many countries with
the widest variety of economic structure that it is difficult to
believe that it can anywhere be adequately explained by reference
to purely local conditions or local policy. Clearly the only satis-
factory test for determining the optimum number of farmers in any
country or in the world as a whole is their ability to supply the
food and raw materials which the community needs. If anything happens
to increase the efficiency of their production, the optimum number
of farmers will diminish. After a certain rather low standard of
income has been passed, the demand for food is not greatly stimulated
by any fall in price which increased efficiency makes possible.
People prefer rather to spend the money they save through getting
food more cheaply on other things, on clothes, housing and other
needs, familiar and unfamiliar, because happily, as Adam Smith
pointed out long ago, the capacity of the human stomach is limited.
There can be little doubt that improvements in agriculture have in
were not available surplus population has backed up on the farms. A high level of employment is then one of the prime requisites of the necessary movement of labour out of agriculture. The failure of the surplus labour in agriculture to transfer elsewhere results in a low rate of return to this factor of production.

There are two factors, in addition to higher fertility rates, which tend to induce a surplus of labour. The first of these is technological improvements which both tend to replace labour with capital equipment and to increase the output of all the productive factors. The adoption of power machinery, fertilizer and new strains of crops and livestock has greatly increased gross output and output per man. Secondly, as the income of our society increases the demand for food increases less than in proportion; in economists' terminology, the income elasticity of the demand for food is less than unity. The
combined effect of these three factors, a higher fertility rate in agriculture, rapid advances in agricultural technology and a low income elasticity of the demand for food, places a burden upon our economic system in moving excess population out of agriculture.

In his "Agriculture in an Unstable Economy", Schults explicitly separates the problem of securing "adequate" returns to agriculture in the long run and during periodic recurrences of business cycles. In dealing with the secular problem he continues to emphasize primarily those factors which will tend to bring about comparable returns to agriculture through the operation of competitive forces and secondarily the adoption of direct measures designed to improve the welfare of the people on farms. Among the former, major emphasis is placed upon fiscal-monetary policies designed to maintain a high level of employment in the economy thus making jobs available to people who wish to leave the farms.

The second avenue of approach, that of contributing to the welfare of farm people, envisages public investment in farm people, particularly the young. Such investments, it is believed, will increase the productivity of farm people and add to their mobility. Schults maintains that investment in farm youth will enhance their willingness and ability to seek and hold jobs outside of agriculture. Such investment might be made in the form of aids to education, the provision of medical services, better nutrition and housing. The solution to secular maladjustment in the returns to agriculture should not be sought through increased payments for farm products for two reasons:

(a) Such payments tend to be regressive, i.e., families with higher incomes receive more than those with lower incomes.
(b) Payments tied to resources tend to distort the use of such resources and thereby cause the product to be less than it otherwise might have been.1

Turning now to the second problem, that of cushioning the effect of unemployment, upon the agricultural sector of the economy, Schultz recognises a different problem and accordingly prescribes a different approach towards alleviation and control. The welfare of agriculture is quite properly regarded as intimately linked with that of the economy as a whole. A high level of employment is essential in the non-farm sectors of the economy if labour is to transfer out of agriculture at a rate sufficiently rapid as to maintain the returns in agriculture at a level comparable to those receivable elsewhere.

However, if the devices used to maintain a high rate of employment in the economy as a whole prove inadequate, then agriculture will, because of her extreme vulnerability2, be immediately affected. Shifting resources

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1For another analysis which reaches essentially the same conclusion see T. Lynn Smith and Ralph W. Roberts, Sources and Distribution of the Farm Population in Relation to Farm Benefit Payments. Jour. of Farm Econ. 23: 607-618. 1941.

2Vulnerable because total agricultural output is relatively insensitive to general changes in the price level. Rather than curtailing output and taking advantage of whatever inelasticity that there may be in the demand for foods, farmers tend to maintain output and, perforce, accept a lower price per unit for their products as demand declines.
out of agriculture is not the answer to cyclical unemployment since it is assumed by definition that the decline in demand is of a temporary nature. What is required is a means of maintaining cash income to farmers during the depression phase of the cycle.

Schults here proposes a system of compensatory payments designed to stabilize farm income, to be counter-cyclical in its effects and not to cause a disturbance in the consumption and production of farm products. Essentially the scheme is to pay to farmers the difference, or some pre-determined portion of the difference, between the market price and a floor price for their products. Such a floor price would be the market price prevailing at such time as some selected index of non-farm activity declined below a stated minimum. This selected index might be industrial payrolls, per cent of the labour force unemployed, or some other measure of the level of business activity. These payments would be made on all agricultural products and, Schults claims, would not interfere with the distribution of the product through normal trade channels whether these were domestic or export. Payments would be discontinued at such time as the falling unemployment index again reached zero, as defined, or the price of the commodity regained the pre-depression level.

As the pathfinder, who, although not the first to find, was the first to illuminate the target area, Schults's analysis and proposals form a background against which many later appraisals blend closely. Apart from the elaboration of such techniques as forward prices, storage

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programs and surplus disposal schemes, one other approach stands out because of its direct attack upon the problem. Before passing on to an examination of the techniques suggested as means to stabilize farm income it is worth while to outline this direct approach.

B. The Norton-Working Proposal

Norton and Working of the University of Illinois have suggested that if it is desired to maintain the net income of farmers that this should be attempted by making direct payments to farmers based upon their net income or net sales rather than through subsidies or compensatory payments. Reduced to its simplest terms, the Norton-Working proposal boils down to the maintenance of some given ratio between net farm sales on a per capita basis and net national income on a per capita basis. The determination of this all important ratio would be left to Congress, not to the executive branch of the government.

Spelled out, the formula would be as follows:

\[
\frac{\text{net farm sales}}{\text{farm population}} \div \frac{\text{net national income}}{\text{total population}}
\]

which, using data for 1939, for the United States would be:

\[
\frac{86.7 \text{ billion}}{30.8 \text{ million people}} \div \frac{70.7 \text{ billion}}{130.4 \text{ million people}} = 0.41
\]

If now the desired ratio was set at .44, it would be necessary to raise

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each individual farmer's net sales by \( \frac{\sigma}{\delta} = 1.08 \), or by 8 per cent.

Net sales are defined as gross sales less purchases of feed and livestock.

The authors of this scheme of "production payments", as they choose to call them, regard its chief merit as retaining the system of market prices to allocate resources and distribute incomes among individuals.

This brief review of the major trends of thought among American economists as to desirable goals and means to be sought in furthering the welfare of people in agriculture and in the economy as a whole is not intended to be exhaustive. Much of the best that has been written is in terms of specific techniques.\(^1\) A number of overall analyses of the problem together with specific proposals are to be found in the prize-winning essays of a recent contest sponsored by the American Farm Economics Association.\(^2\)

Our purpose in the following chapters of this thesis will be, first, to appraise the appropriateness of the program suggested as a means of securing "adequate and more stable income from farming." Secondly, we

\(^1\) G. S. Shepherd.
(d) Agricultural Prices After the War. Wartime Farm and Food Policy Pamphlet No. 11. Ames, Iowa: Iowa State College Press. 1945.


\(^2\) A Price Policy for Agriculture, Consistent with Economic Progress,
will be concerned with an analysis of Canadian conditions in an effort to determine the extent to which the techniques suggested by American writers are appropriate. Finally, it is hoped that it may be possible to evolve a positive program designed to stabilize farmers' income and at least partially protect agriculture from recurrent cyclical fluctuations in demand without prejudicing the chances of the Canadian economy to provide a higher standard of living for all its citizens.

III. AN ANALYSIS OF SOME SPECIFIC PROPOSALS
to stabilize farm income

In the preceding chapter we have outlined two suggested methods of stabilizing and supplementing farm income. These two schemes are now selected for a more detailed analysis since they represent fundamentally different approaches and also since we are concerned with the administrative problems likely to be encountered in implementing such plans.

A. A General Comparison of the Schultz and Norton-Working Plans

The proposals put forward by Schultz and by Norton and Working have at least one important characteristic in common. In both plans care is taken not to interfere with the function of the price mechanism in distributing farm products. Both would make payments directly to farmers and permit the prices of foods and fibres to seek their own level in the market place. This characteristic is not only highly desirable; it is essential if farm products are to be distributed according to consumer preferences. No government agency, however efficient or well organised, can hope to keep market prices at an equilibrium level by means of price fixing. An agency entrusted with such a task in our democratic society is all too apt to find itself subject to irresistible political pressure. The experiences of the Americans in administering the Federal Farm Board, the Commodity Credit Corporation
and the parity price technique point all too clearly toward this conclusion.

The most readily apparent difference between the two plans is that Schultz proposes to tie payments to farmers to prices whereas Norton and Working would divorce payments from prices. It is true that under the latter plan the level of the prices of farm products relatively to the prices of all other products and services would be one of the principal determinants both of the size of the aggregate payment to farmers and of the distribution of payments among individual farmers. But this is because prices, along with volume of net sales, are the determinants of the value of net sales and not because income payments are tied directly to prices.

The immediate goal of the Illinois plan is to guarantee to farmers as a group an income from "net sales" which would cause either the aggregate of farmers' receipts from net sales or net farm income to bear a pre-determined ratio to net national income produced. Schultz, on the other hand, would guarantee farmers a floor price in terms of a fixed percentage of some average "pre-depression" price and then also let the products find their own level on a competitive market. The two plans might be paraphrased by saying that Norton and Working are attempting to achieve a variant of income parity; Schultz is attempting to cushion a decline in farm income by establishing a general floor under the prices of farm products.

1Excluding income to persons on farms from non-farm sources.
What can be said of the relative merits of the two plans? Since they are designed to accomplish the same broad objective are they roughly equivalent and will either (or neither!) do the job? It would be well to enquire at the outset as to the objective which the authors of each plan had in mind when they prescribed these particular means to the attainment of that objective. That is, what is the job to be done?

Schults declares his primary objective to be a reduction in the instability of farm income caused by business fluctuations.¹ He proposes a program which is intended to dampen cyclical fluctuations in the economy as a whole, to permit production and trade in agricultural commodities to operate under competitive market determinants, and to stabilise farm income sufficiently as to remove the incentive for production control and price supports. It will be recalled that Schults would maintain the prices of farm products to farmers during depression at either their pre-depression level or at "such proportion of the latter as public policy deems appropriate."²

Norton and Working regard their proposal as essentially a parity income plan which will "guarantee farmers the approximate share of the national income they get in normal times."³ They too claim for their proposal the advantage of permitting the price system to direct production

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²Schults, op. cit., p. 225.
and consumption of farm commodities according to consumer preference, and of being counter-cyclical in its effect upon the economy. The authors of this plan would maintain total cash farm income at a level fixed relatively to that of the net national income of the economy as a whole.

In examining these two alternative proposals, we propose to proceed from the general to the specific; that is, to appraise them in terms of their overall desirability and then to examine in detail the implications of each.

What about the broad objective which each would serve? Should farmers be assured that their net per capita sales or net per capita farm income will always bear a fixed relation to net national income on a per capita basis? The validity of this argument is examined below in terms of guaranteeing a fixed proportion of net income to any given

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1This fixed relationship of farmers' income receipts to net national income may be established at any predetermined level. In Canada proponents of "a fair share of the national income for agriculture" usually mean a proportionate share. That is:

\[
\frac{\text{net farm income}}{\text{net national income}} \times \frac{\text{total population}}{\text{farm population}} = 1.
\]

If 28.5 per cent of the Canadian population lives on farms (census estimate for 1941) then net farm income should be 28.5% of net national income according to this criterion. (For a criticism of the content of this type of estimate from a statistical point of view see E. C. Hope, Agriculture’s Share of the National Income, Canadian Journal of Econ. and Pol. Sci., 9:384-393, 1943, and G. L. Burton, Agriculture’s Share of the National Income, A Comment, Canadian Journal of Econ. and Pol. Sci., 10:206-207, 1944.) Norton and Working, while adopting this approach in principle for the American economy, do not suggest a proportionate share of the national income for farmers. They also relegate net farm income to second choice in favor of "net sales". They suggest the use
producer group under a slogan such as "a fair share of the national income to agriculture." The best answer to this suggestion would seem to be in these terms: "Why should the people engaged in agriculture, as distinct from those in any other industry, be offered a proportionate share of the national income?" The government having adopted such a plan for agriculture might find itself compelled to carry through and grant the same concession to other industries - to fishing, to logging, to trapping, to mining and possibly even to secondary industry.

Once society has determined the specific share of the total product which each group shall receive, it has gone a long way toward removing the effectiveness of the price system in allocating resources among industries. This we should not do, at least until we have determined upon some other way of performing this allocative function. It may be that agriculture alone should and could receive this guarantee. True, the degree to which the economy would then be compartmentalised would be much less than if the principle were generally applied. The criticism that the movement of resources between agriculture and the rest of the economy would be impeded, however, still applies. It would not be wise to obstruct with economic incentives, which pull in the opposite direction, of the following ratio:

\[
\frac{\text{net farm sales}}{\text{net national income}} \times \frac{\text{total population}}{\text{farm population}} = \text{(say) .41}
\]

They would then leave the determination of the desired ratio to Congress. In a Congress in which the senior member "overrepresents" the interests of agriculture and in which the influence of agricultural pressure groups is quite perceptible, the adoption of such a plan should certainly not dismaya American farmers. Other taxpayers might be less happy.

1See below p. 65.
direction, the movement of people out of agriculture and into other industries; this trend represents a desirable adjustment to basic economic forces. To block the adjustment is to make a less than optimum use of our resources, which, in turn, will diminish total net product.

The operation of the Norton-Working proposal is not necessarily limited to depressions. The determination of when it would and would not operate would depend in large measure upon the level at which Congress saw fit to fix the income ratio upon which the scheme depends. Were it placed at .5 farmers would have received payments in all but the most prosperous war years; were it fixed at .4 it would have increased farm income only in 1931, 1932 and 1940. The plan has the advantage that once the decision has been made to determine incomes of producers by government fiat rather than in the market place, the responsibility for this determination is placed squarely upon the representatives of the people where it belongs.

Schultz' proposal does not lend itself to the maintenance of income parity in an undesirably rigid form as readily as does that of Norton and Working. It will be admitted, I believe, that the latter scheme could be handled in such a way as to provide a cushion for overall farm income during a depression and yet be inoperative when farm prices strengthened. If used as a counter-cyclical measure in this way a new ratio might be selected each time unemployment began to rise and farm prices to fall. This practice would permit a new ratio to be selected at the beginning of each depression, which would reflect the competitive
position of agriculture in the economy prior to the depression. Farm pressure groups on the other hand might be only too likely to argue that "agriculture's fair share of the national income" should be closer to unity. Such a viewpoint if held by a politically powerful group might well result in raids on the public treasury which would end in the discrediting and ultimate rejection of the plan.

Since Schults' plan would operate without reference to income parity, it should stand a better chance of escaping this particular pitfall. In the writer's opinion the freezing of prices at a given level during a depression does not lend itself to the same degree of abuse as the maintenance of some form of income parity. If labour is to be more or less continuously moved out of agriculture there will probably need to be some differential in the rates of return to people in agriculture and to those in other industries. To establish some variant of an income parity goal for agriculture might well tend toward the elimination of such a differential. The divergence between market prices and guaranteed prices is, on the other hand, readily apparent and once a minimum level of employment has been attained public pressure may suffice to secure the removal of compensatory payments. The superficial plausibility of specious arguments for income parity at levels ever more favourable to agriculture, on the other hand, could make an income parity plan a dangerous expedient.

1That is, the per capita net income of persons engaged in agriculture and in non-agricultural employment should be equal. This would be true, however, only if net farm income included income to persons on farms from non-farm sources. The present series in both Canada and the United States of net farm income estimates does not do this. This practice magnifies the error introduced in comparing net farm income with income accruing to persons in other sectors of the economy by not only failing to credit farm people with outside income but in attributing this income to non-farm persons.
Also, the intervals between future depressions will, presumably, be sufficiently long as to permit prices to become adjusted to supply and demand conditions and therefore not encourage distorted resource allocation during depressions. Schultz is well aware that economic progress may, during a period of depression, move away from the point where it was when employment fell and that production patterns should change accordingly. He is inclined to discount this disadvantage though on the basis that shifts in demand during depressions are apt to be temporary since depressions "breed distortions and economic maladjustment". Should we be unfortunate enough in the future to encounter periods of unemployment comparable in length to that of the thirties, this objection to the firm in agriculture being confronted with rigid, non-economic price ratios would seem valid.

We may sum up this overall comparison between the two plans in this way. Schultz's plan tends to leave somewhat less to the discretion of the government than that of Norton-Working. This is tantamount to saying that the rules of the game might be worked out ahead of time for Schultz's plan—i.e., a definition of pre-depression price accepted; the critical or zero point on an index of employment determined and agreement reached on the percentage of the pre-depression price to be paid in the event that both employment and farm prices are below the zero point and 85% of the pre-depression price respectively. If these critical values were once satisfactorily determined, the plan might be expected to operate indefinitely as a second line of defence for farmers against depression,
especially if the first line, fiscal-monetary measures applied to the economy as a whole, do not shift back too much of the burden. The Schultz plan might therefore gain something in its capacity to resist possible pressure from farmers' organizations once agreement had been reached on three points:

1. The volume of unemployment which would be required before the plan should be put into operation.

2. The length of the pre-depression period which should be used to secure an average pre-depression price.

3. The percentage of the pre-depression price which would be guaranteed to the producer.

Agreement could probably be reached on the first point by examining the degree of frictional unemployment existing when the economy is operating at a fairly high capacity and fixing the critical point on the employment index below, but not too far below, this level.

In determining the length of the pre-depression period which should be averaged to secure a benchmark for prices, farmers will be concerned that this should not be so long as to include years from a previous depression. It is possible, however, that if the price level of farm products continues to be subject to sharp ups and downs that the selection of a short period may lead to the establishment of a base which would prove too high. Should the American economy now fall victim to a sharp deflation, and an effort be made to maintain prices to farmers at 85% of the price prevailing during the war and post-war inflation, these prices would simply be out of line. The greater the decrease in prices in other sectors of the economy the further out of line would these guaranteed prices for farm products be.
The determination of the percentage of the pre-depression price which will be guaranteed may prove far more difficult of solution. Schultz tentatively suggests 85%. Without knowledge of the extent to which other prices may fall, the advance guarantee of a high percentage of a pre-depression price could result in the placing of farmers in a very preferred position in the event of a sharp fall in the prices of non-agricultural products and services. It might be argued that the prices of industrial products and the wages of organised labour are relatively inflexible, that employment, rather than price, declines will occur. This is certainly true in a large sector of the economy, and where it is true, the maintenance of incomes in agriculture will help to maintain employment in the industrial sector.

The determination of the essential parameters of the Norton-Working proposal might, on the other hand, prove highly controversial. This plan deals directly with income guarantees for a large industry and legislators, particularly those who represent predominantly rural constituencies, tend to have very definite ideas concerning the distribution of incomes. They are apt to have a difficult time reconciling themselves to the fact that agriculture is relatively, at least, a declining industry and that, therefore, incentives should be provided for the movement of people off farms and into non-farm sectors of the economy. Neglecting this factor they may prove all too prone to contend that people in agriculture should have per capita net incomes equal to those in the non-farm sectors of the economy.  

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1It should be remembered that the income of people in different industries, working under widely differing conditions, buying different
B. The Application of the Schults Plan in Detail

We have previously noted, as a commendable feature, that the Schults plan does not lend support to those who maintain that each industry should, in a rigid sense, receive "a fair share of the national income". Judged in the most favourable light this plan would support prices received by farmers during a period of depressed demand, maintaining agricultural production at or near its normal output and keeping the farm economy operating at a steady level. While the Norton-Working plan would guarantee to farmers a fixed per capita share of a falling total national income during a depression, the Schults plan would guarantee them a fixed gross income if we assume the total output of agricultural products to be relatively constant. If the index of prices received by farmers declines by 15 per cent while the index of prices paid by farmers for goods and services used in production also falls by 15 per cent, total net farm income will decline to a level 15 per cent below total net income for the pre-depression base period. If the index of prices paid

"baskets" of consumers' goods can be compared only in money terms. Any comparison in real terms is futile. This consideration seems to preclude any possibility of valuing income in kind to farmers at retail rather than farm prices. To value such goods at what the farmer can sell them for represents an alternative to using them himself and makes sense if an effort is being made to compare money incomes. To attempt to value these goods at retail prices, because these foods are at least as good as the urban dweller buys from a store, is to attempt a comparison in real terms which is impossible in any case.

1 Assuming the weights used in constructing the indexes of prices received and prices paid are equal to current year quantities sold and purchased respectively. With the fixed weight aggregative type of indexes used this will not be exactly but only approximately true.
declines more than 15 per cent, aggregate net farm income will be more than 85 per cent of net income for the base period.

The following specific points are intended to point up the contrast between the probable effects of the Schultz and Norton-Working plans:

1. **The effect of crop failure on the distribution of payments**

   Since under the Norton-Working plan the payment made to any individual farmer is a fixed percentage (for any given year) of that farmer's net sales (or net income) this proposal would benefit producers in proportion to the market value of those products. The farmer who had a good crop in a depression year would benefit accordingly; the less fortunate operator who experienced crop failure would receive nothing. Since the Schultz plan guarantees a minimum price it too would favour the man who has a good crop just as would a free market. From this point of view there seems to be little difference in the two plans; both would need to be supplemented with a crop insurance program.

2. **The Schultz plan is less regressive than the Norton-Working plan**

   The prices of farm products vary relatively to each other. Under the Norton-Working plan if the ratio of per capita net sales to per capita net income is lower than the specified minimum, payments will be made. All farmers selling farm products will qualify irrespective of what the relative price of their product may be; in fact, the higher its price, the more the producer will receive; to him that hath shall be given. Under the Schultz plan no payment will be made unless the price of the
product is below the floor price. On this count we find the Schults plan superior.

As applied to an economy where agricultural products enter in varying degree into international trade this disadvantage of the Illinois plan might be important. If in Canada, for instance, low export prices for wheat pulled farm income down to the point where payments went into effect, dairy farmers, hog raisers, beef producers and fruit growers, among others, would receive payments even though prices for their product were normal or higher. And, ironically, the higher these prices the greater share of the total income payments which they would receive.

It might be suggested that this disadvantage could be overcome by regionalizing the application of the plan, perhaps on a type of farming basis. It is not readily apparent as to just how the administrator or the legislature should determine when payments would be made or how large they should be on this basis. One of the great difficulties with the Horton-Working plan is that it is designed to stabilize the relative proportion of the national income going to agriculture and it is not concerned with the equally important problem of how best this income may be distributed within agriculture. The Schults proposal on the other hand is specifically designed to raise those prices which are abnormally low during a period of cyclical unemployment.

3. **Duplication of payments on inter-farm sales**

Could duplication of payments on inter-farm sales be avoided under the Schults plan? Schults proposes to make up the difference between
his guaranteed floor prices and market prices by means of a compensatory payment made directly to the farmer. The method of payments must be such as to eliminate duplication, that is, payment must not be made on the same product more than once. This raises the question of how inter-farm sales are to be handled.

We shall see that income payments under the Norton-Working plan would have to be handled on a net basis to eliminate duplication. Under this latter plan, if a farmer purchased feed or livestock from another farmer the value of this purchase would have to be deducted from the value of those products which he sold when he submitted a claim for an income payment based on the value of these net sales. One method of checking on these deductions would be to require any farmer selling to another farmer to secure a signed invoice from the purchaser giving the quantity and description of the product sold. The vendor would then submit this statement in support of his claim for a government income payment on these inter-farm sales. When the farmer who purchased this feed or livestock submitted a claim for a government income payment he would be deterred from failing to report his purchases by the knowledge that the government agency would possess his signed statement of purchase turned in by the first farmer in support of his claim for a compensatory payment.

This would appear to be a fairly effective method of checking duplication so far as inter-farm sales are concerned. Where farmers purchased feed or livestock through commercial channels, however, these
commercial agencies would not be interested in securing a certificate of sale from the purchaser since they would not require this document as they are not entitled to a compensatory payment in any case. The farmer, knowing that there would be no check on himself, would be tempted not to deduct this purchase when claiming compensatory payments.

This loophole would have to be plugged. The most obvious way to close it would be to require commercial dealers to report all sales to individuals. The adoption of such a practice as this would not prove too palatable to dealers who, in Canada at least, are inclined to believe that they already have too many government forms to complete. Actually there might not be too much additional work involved for commercial dealers since they are now required to submit similar information in their income tax returns and also to the Dominion Bureau of Statistics, although without the names of their customers. The three returns might well be combined into one which would result in more accurate information and involve no more work at least.

This method of handling payments on inter-farm sales would seem to be equally applicable to the Schults plan. The average compensatory payment adjusted for grade, location and season would be determined by the administrative agency. This payment would be made whenever a farmer submitted a claim which was supported by a sales certificate signed by the purchaser and from which the value of all feed, seed and livestock purchased from other farmers had been deducted. This system would eliminate duplication and not obstruct inter-farm sales.² There would be

²This point may not be clear as regards inter-farm sales of feeder
considerable work involved in establishing grade, location and seasonal differentials but this task should not constitute a major objection to the plan. The possibility of combining the administration of any such scheme as that proposed by Schultz with the checking of farm income tax returns should be carefully investigated.

In Canada, grains, hogs, beef cattle, and milk handled by processors or distributors pass through "bottleneck" commercial marketing channels where sales certificates could be easily issued. Farm products sold directly by the farmer into the hands of the retailer or immediate consumer would present more difficulty. There would be no check on the cattle. Let us suppose the following prices per hundred lbs. to prevail for specified grades of cattle in a particular area. For convenience we will distinguish only two grades and label them "feeder" and "finished".

<table>
<thead>
<tr>
<th></th>
<th>Feeder cattle</th>
<th>Finished cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market price</td>
<td>$7</td>
<td>$9</td>
</tr>
<tr>
<td>Forward price</td>
<td>$10</td>
<td>$12</td>
</tr>
</tbody>
</table>

The producer of feeder cattle sells at the market price of $7 either to a cattle feeder or to a packer. He secures a certificate of sale, signed by the purchaser, stating the weight and grade of these cattle. Upon submission of this certificate to the pricing agency he receives a compensatory payment of $3 per cwt. If a feeder buys these cattle he fattens and sells them for $9 a cwt. The feeder thereupon submits a claim to the agency for a compensatory payment of $3 per cwt., but only on the weight which he has added. This latter provision will prevent the feeder from bidding cattle away from the packer because of the advantage conferred upon him by the system of compensatory payments. Such an advantage would indeed obtain if the feeder were permitted to claim a compensatory payment on the total weight of the finished cattle which he sells. If, under these circumstances, the feeder is able to bid cattle away from the packer the forward price of finished cattle has been set too high relatively to the forward price of feeder cattle. This solution to the problem of inter-farm sales necessitates all feeder cattle being weighed at the time they are sold.
producer-distributor of milk. Fraudulent claims for payments could be made by farmers and local butchers acting in collusion. However, subsidies have been paid to producer-distributors of milk during the war without obvious peculation. Appropriate penalties for misappropriation of public funds, together with spot checks, would probably make this system work fairly effectively.

4. Discrimination between producers

When we examine the Norton-Working plan we shall find it to be open to the serious criticism of favouring straight feeders, i.e., feeders who buy all their feed, over those farmers who produce the grain which they feed. In other words, it results in two livestock-feed ratios: one for specialized feeders and one for combined grain and livestock producers. The former livestock-feed ratio is the higher in any year in which income payments are made and this discrimination among producers results in an uneconomic distortion of resource use. Is the Schultz plan subject to this same objection?

Unfortunately, it is. The specialized feeder who buys all his grain and resells it in the form of hogs will collect his compensatory payment on hogs if their price is below the floor price. The man who produces his own barley on the other hand could sell this barley directly and collect a compensatory payment if the price of barley is below the floor. Feed therefore costs him more than it does the specialized feeder by the amount of the compensatory payment, thereby decreasing his barley-hog ratio.
This sort of situation has existed in the Prairie Provinces since the practice of making an equalization payment on coarse grains was instituted in 1943. Those farmers who produce and sell their barley and oats collect 15 and 10 cents per bushel respectively. If they feed these grains they are in effect paying ceiling price plus equalization fee. On the other hand, if they are feeders only, they can buy their grain at ceiling prices.\textsuperscript{1} This places the straight feeder in a preferred position and has led to a lot of dissatisfaction, which, among other reasons, caused a sharp drop in hog production. It may be interesting to note here that under the Canadian administrative procedure each producer has a permit delivery book in which all sales into commercial channels are entered. If he purchases grain, these purchases are also entered and he must refund the equalization payment for each bushel purchased up to the point where he has bought as many bushels as he has sold in that year. Beyond this point he may buy at ceiling prices. This system has been administered by the Canadian Wheat Board which is now a state monopoly administering the grain trade.

It might be suggested that this system could be corrected in such a way as not to favour the straight feeder by permitting the feeder who raises grain to sell it and repurchase grain to feed at the market price. This would place the feeder-producer on the same basis as the straight feeder. It would be uneconomic to the extent that it would

\textsuperscript{1}The 25 cents per bushel rebate on wheat used for feed has placed producer-feeders of wheat in a disadvantaged position similar to that of farmers raising and feeding coarse grains.
involves hauling grain to and from the farm together with handling costs. This might not be too high a price to pay but another difficulty presents itself. Some farmers would buy grain for feeding, or have their neighbors buy it for them, and then resell it.

One way in which this difficulty could be overcome would be to artificially colour grain before permitting it to leave the elevator for the farm. If this idea found favour it might be feasible for the Wheat Board to have a few crews with outfits who would call at the farm, weigh and colour the grain to be used for feed and forward a statement to the Wheat Board to permit the farmer to receive his income payment. It occurs to the writer though that farmers would immediately have their seed grain coloured and collect a payment on it. This would be undesirable since it would place a further premium upon the use of home grown seed and discourage the buying of registered or certified seed of better quality.

A second way to avoid this discrimination against the farmer who raises and feeds his own grain as compared with the specialized feeder, would be the elimination of compensatory payments on feed grains. It may be that a forward price for livestock and livestock products together with the partial stabilization of feed supplies through the use of a storage program would sufficiently stabilize the price of coarse grains. During periods of depression the price of an average-weather crop of coarse grains could be supported through livestock price supports. This suggestion is only thrown in at this point since the problem of price supports will have to be considered for all farm products at the same
time if distortion of resource use is to be avoided. In a later section of this thesis dealing with positive proposals for an agricultural price policy in Canada we will return to this point.

Apart from the difficulty involved in distinguishing feed grain left in the farmers' hands, and upon which a payment has been made, from other grain, the making of compensatory payments offers no further major difficulties. The making of such payments upon factors does not constitute an objection to the Schultz plan. If a farmer produces the grain which he feeds rather than selling it, there does not seem to be any valid reason why he should not receive a payment on both the grain and the livestock product. It is not suggested that any payment should be made on hay and pasture although the lack of such payment would favour the production of grain during periods in which compensatory payments were being made on the latter product. This might cause some distortion of resource use in that land which would otherwise be devoted to grass would be seeded to grain when compensatory payments were expected on grains.

C. The Application of the Norton-Working Plan in Detail

Let us turn now to an examination of the way in which the Norton-Working proposal might be expected to work out in practice. It will be recalled that each farmer would receive a percentage payment on his net farm income (or net sales) designed to bring total net farm income, including payments, up to a predetermined ratio of net farm income to net national income. If it is necessary to raise total net farm income
by say 10 per cent to achieve this predetermined ratio, then each farmer
will be paid 10 per cent of his net income for the year.

The following points seem worthy of attention and are, as far as
possible, parallel with those raised in connection with the Schults plan:

1. **The effect of crop failure on the distribution of payments**

   Let us suppose that for a particular year the Norton-Working plan
calls for a payment of 10 per cent to be made on all net sales. We
shall also make the assumption, very likely to be fulfilled in practice,
that net income on some farms has been depressed by an unplanned reduction
in output resulting from crop failure. Those farmers suffering from a
reduction in output will receive a payment of, say, 10 per cent while
other more fortunate producers with normal output will also receive 10
per cent of their net income. The size of the payment in the second
case will exceed that in the first, thus reinforcing by government pay­
ment the good fortune of those already favoured by the distribution of
rainfall. A system of crop insurance with benefit payments included in
net farm income would partially overcome this defect. However, crop
insurance has so far been applied only to grains in the United States
and has not yet been attempted in Canada for any crop.

2. **The effect of price variation on the distribution of income payments**

   We have noted that the prices of farm products normally vary relatively
to each other. If the Norton-Working plan were applied to Canada, a
decline in the price of livestock products, or a crop failure, might
lower the ratio of total net farm income (or net sales) to net national income to a level below that specified as a minimum. All producers would now receive a government payment representing a fixed percentage of their net income. The producers of a product whose price had not declined would, moreover, receive a higher relative payment than those producing a product whose price had suffered a sharp drop.¹

The extent of this variation of farm product prices relatively to each other is indicated in the following table:

Table 1
Price Relatives of Certain Farm Products in Canada in 1932 and 1937 (1928 = 100)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>1932</th>
<th>1937</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat¹</td>
<td>41</td>
<td>100</td>
</tr>
<tr>
<td>Oats²</td>
<td>48</td>
<td>89</td>
</tr>
<tr>
<td>Barley³</td>
<td>44</td>
<td>86</td>
</tr>
<tr>
<td>Flaxseed⁴</td>
<td>43</td>
<td>91</td>
</tr>
<tr>
<td>Steers⁵</td>
<td>50</td>
<td>64</td>
</tr>
<tr>
<td>Hogs⁶</td>
<td>44</td>
<td>85</td>
</tr>
<tr>
<td>Cheese⁷</td>
<td>46</td>
<td>67</td>
</tr>
<tr>
<td>Butter</td>
<td>53</td>
<td>70</td>
</tr>
<tr>
<td>Eggs⁸</td>
<td>61</td>
<td>65</td>
</tr>
</tbody>
</table>

¹No. 1 Northern basis in store Fort William
²No. 2 C. W. basis in store Fort William
³No. 1 feed basis in store Fort William
⁴No. 1 C. W. basis in store Fort William
⁵Good butcher steers up to 1050 lbs. at Toronto
⁶1 bacon hogs, live weight at Toronto
⁷Wholesale jobbing No. 1 Western, Montreal
⁸Wholesale jobbing No. 1 Pasteurized, Montreal
⁹Wholesale A large, Montreal

The average prices of all farm products in 1932 had fallen to roughly the same proportion of their respective average prices in 1928. From the standpoint of relative variation in prices the Morton-Working plan would have had a fairly equitable incidence. This was not true, however, in 1937 when the prices of grains were much stronger relatively to the prices of livestock and livestock products. It is this sort of situation which would cause payments under the Norton-Working plan to be inequitable.

It may be argued that if the prices of livestock products decline there is good reason why the relative returns to livestock producers should also fall in order to encourage a shift in the use of resources. This contention is valid, especially if the reduced livestock prices represent a more or less permanent change in conditions of demand and supply, which was, of course, not true in 1937. The question remains, however, as to whether it is desirable to increase not only the net income of livestock producers but also those of farmers producing other products, the price of which has not declined. Taxpayers might legitimately object to the making of transfer payments to those already receiving "normal" prices for their product.

3. The administration of the plan

The administration of such a plan is worth some consideration. How is net income, or net sales if this variant is used, to be determined for the individual farmer? If net income is selected as a base for payment, income tax returns might be used for the purpose of deter-
mining the individual's net income from his own farming operations. This would necessitate all commercial farmers filing a return but such a practice might well prove to be an advantage in that it would discourage evasion of income taxes through not filing a return during periods of prosperity.

If the plan were based on a gross sale basis this method would still be applicable. Here, however, we seem to encounter a fundamental difficulty in the plan itself. Farmers could easily pad gross sales by making sales to each other. This would probably occur even as among members of the same family operating a single farm. Each son might "rent" a parcel of land from the father. One or more sons would handle the livestock enterprises and "purchase" their grain from other members of the family while all submitted claims for income payments. In the opinion of the writer this rather open invitation to inflate sales constitutes a very serious objection to the granting of payments on the basis of gross sales.

4. The plan favours the farmer with a high ratio of sales to net income

The making of payments on the basis of net or gross sales would favour the operator whose ratio of net or gross sales to net income is highest.¹ Consider two farmers A and B:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Net Sales</th>
<th>Net Income</th>
<th>Net Income plus Payment of 10% of net sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$2000</td>
<td>1000</td>
<td>1200</td>
</tr>
<tr>
<td>B</td>
<td>4000</td>
<td>1000</td>
<td>1400</td>
</tr>
</tbody>
</table>

¹This criticism is also levelled at the Norton-Working plan by Helen Farnsworth, op. cit., p. 829.
Farms differ widely among themselves in the ratio of net sales to net income. Extreme examples are to be found in a cattle ranch producing feeder steers, using little labour or materials, and a tobacco farm using large quantities of labour and fertilizer. This objection applies a fortiori to payment on the basis of gross sales.

5. Payments on a gross sales basis would create a two price system

The making of payments on the basis of gross sales would result in a two price system for farm products sold among farms. Let us suppose, as Shepherd suggests,¹ that certification by local committees might prove an effective means of distinguishing legitimate from non-legalitimate inter-farm sales. Presumably a bona fide sale of grain or feeder cattle by one farmer to another would be considered legitimate whereas a transfer designed solely to increase income payment receipts would not be. Farmer A selling oats to Farmer B would collect 10% ad valorem on the sale from the government. But Farmer B can afford to pay Farmer A up to 110% of the market price (price of oats prevailing among non-farmer traders), neglecting costs of transportation and handling, since he (Farmer B) can sell the oats again and in turn collect 10% ad valorem from the government. It would seem then that payments on a gross sales basis would result in a two price system for farm products—one for farmers eligible for payment, and one for non-farmers, with the price in the farmer market somewhat less than 110% of the market price.

The maintenance of this two price system would only require that local committees would have to prevent farmers buying grain from commercial channels. If a farmer both produces and feeds grain himself, it would soon occur to him that he should sell what he raises himself, thereby collecting the ad valorem payment on gross sales, and buy what he feeds from a commercial concern. This would cost him about 10% less (in our example) than if he bought from another farmer. The local committee would have to see that that quantity of grain which he bought should be deducted from what he sold before computing the income payment. This would be in effect the substitution of net for gross sales as a method of making payment. The degree of supervision which this would entail would make the duties of a local committee anything but enviable.

The principal reasons prompting Dr. Shepherd to suggest gross sales as a basis for payment appear to have been threefold: first, the difficulty involved in determining the individual farmer's net income; secondly, his belief that payments on this basis would more closely approximate previous market conditions; and thirdly, the loss which a cattle feeder might sustain if the price of cattle dropped while he was holding them. It is admitted that a feeder who, after purchasing cattle, finds the market has declined will lose not only the amount by which his inventory has depreciated, but also by the relatively lower income payment on this inventory when he disposes of it. On the other hand, if the market had strengthened he would have gained, not only by the amount of appreciation in his inventory, but also by the difference in income.
A strong case might be made for "protecting" farmers against windfall gains if we are going to protect them against windfall losses. The Norton-Working proposal does not attempt to protect farmers against loss incurred through the purchase of other capital at inflated prices. Why then should losses on feeding operations be singled out? It may be that the best means of promoting stability in the feeding industry will be offered through forward prices for feed and livestock or a forward price for feed and a forward livestock-feed ratio. This proposal will be examined later. Possible losses to livestock feeders does not seem a sufficiently cogent reason to invite the difficulties associated with making payments on the basis of gross sales.

6. Payments based on net sales or net income favour the specialised feeder

The making of payments on the basis of net sales or net farm income would favour the feeder who buys his grain as compared with the feeder who produces all or a part of the grain which he feeds. The cost of feed grain to the specialised feeder is the market price; the cost to the producer-feeder is the market price plus 8 or 10 per cent or whatever the rate of the income payment is. This same objection holds in the making of compensatory payments under the Schults plan as we have seen.

1 We have assumed for simplicity that changes in the price of cattle do not affect the total income payment to be distributed among all farmers.
7. **The definition of net farm income**

In examining the Norton-Working plan it would be well to define carefully what is included in net farm income if payments are to be made on this basis. So far as the writer is aware, Norton and Working have not defined net income. The following points suggest themselves:

a. **Inventory changes.** What method is to be used in handling inventory changes of farm products on farms? The inclusion of inventory changes in the calculation of net farm income would probably have more effect in encouraging farmers to hold durable products for an anticipated price increase than the omission of these changes in inventory.

Suppose that in any given year it is fairly certain that an income payment will be made to farmers. If no account is taken of inventory changes, products must be sold in that year in order to secure a payment on them. This will encourage the farmer to sell since if he holds them over he may have reason to think that other farmers will hold over enough produce to sale in the next year as to cause no payment to be made. Offsetting this effect may be an anticipated increase in price during the next year. However, this increased price will also lessen the chance of an income payment being made and farmers are not apt to overlook this possibility. Neglecting inventory changes is therefore apt to discourage farm storage when prices are low unless other measures are taken to offset this effect.

If changes in inventory are taken into account, payments will automatically be made on production for that year irrespective of the
amount sold or carried over. This would leave the farmer in the same position as in the absence of the plan in deciding how much product to carry over. If he believes that the rise in price of grain will exceed carrying charges he will carry the grain over until the next year, since carrying it over will have no effect upon the government payment which he will receive.

b. *Income in kind.* The decision as to whether to include income in kind and imputed house rent is fairly clear. They should not be included in the calculation of net income to the individual farmer although they will be included in the calculation of overall net farm income. A farm family with a comfortable house and productive garden should not receive a higher government payment than a family without these good things of life for that reason. The family is already being rewarded in the form of a higher real income for their industry and foresight in producing these goods. This parity income plan might, however, discourage some farm families from consuming all the commercial products produced on the farm which they ordinarily would do since the alternative price for these products would be raised. From an administrative point of view it would be undesirable to attempt payments on income in kind consumed in the farm home since it is almost impossible to check these and indeed few farmers know with any accuracy the quantities which they do use.

c. *Income from non-farm sources.* The net farm income data which Morton and Working suggest should be used in calculating the ratio of
net agricultural to net national income on an overall basis do not include income to persons on farms from non-farm sources. Such income is included in net national income which results in effect in crediting it to non-farm persons when a ratio is formed. So long as the proportion of income accruing to persons on farms from non-farm sources does not change and policy makers do not believe that the per capita ratio of farm to non-farm income should equal unity, this method of calculation may not lead to abuse. However, the percentage of their net income which people on farms derive from non-farm sources may, with increasing numbers of part-time farms, be increasing. This factor should be taken into consideration.

Moreover, non-farm taxpayers may well wonder why they should contribute towards the subsidisation of an individual because his income from farming has declined while he is deriving what they regard as an adequate income from non-farm sources. The Norton-Working proposal might well result in just such subsidisation. This difficulty could of course be overcome if it was decided to use the plan. While it may prove a difficult statistical problem to estimate the income of persons on farms from non-farm sources, such a difficulty would not be sufficient to warrant the rejection of an otherwise satisfactory plan.

D. Summary

Both the Schults and Norton-Working plans exhibit defects as any proposal as ambitious as either of these is almost certain to do. The
writer is apprehensive of the ultimate effects of guaranteeing the
members of any industry a per capita income bearing a fixed minimum
ratio to the per capita income of persons engaged in all other industries.
The acceptance and adoption of this principle by other politically power-
ful groups would hamstring the price system and allocate income by
political decision. There is a limit to the ability of the tax structure
to raise and transfer income. The evasion of tax and the degree of
absenteeism associated with the high rates of income tax which were in
effect in Canada during the war are indicative of these limitations.

The Schults plan is intended to be used as a means of maintaining
floor prices to farmers during periods of unemployment and accompanying
recession in demand. Much of its success would depend upon whether it
was used for this purpose or as a means of permanently increasing
agricultural prices without regard to the level of employment. Its
author has endeavoured to assure its use as a means of maintaining farm
income during depressions only by suggesting that an index of employment
be used as the thermostat which controls the starting and stopping of
the plan.

Both plans are designed primarily to contribute towards stability
of income on commercial farms over the business cycle. They would
contribute little to raising the level of income on part time and sub-
sistence farms which comprise nearly a third of the total number of
farms in Canada. Other measures would be needed to contribute to a
solution of the problems confronting the people depending upon these
farms for a living. Both plans embody machinery designed to supplement farm income during periods in which market prices are inadequate. Both would accomplish this by making payments which are regressive in their distribution; those farmers with the higher incomes will receive the larger payments.

The Norton-Working plan would not contribute to a better allocation of resources within agriculture through the reduction of price uncertainty. The Schultz plan proposes the use of minimum floor prices which would, however, be meaningful only when market prices were lower than 85 per cent of the average price prevailing during the pre-depression period. Schultz also proposes to attack the uncertainty problem during periods of relatively high employment through the use of forward prices, although he has not shown how these forward prices and minimum price floors shall be integrated. Finally, both plans require to be supplemented by a storage program to even out fluctuating supplies of coarse grains from year to year and a crop insurance program to smooth out the receipts of individual farmers resulting from fluctuations in output.

From the point of view of administrative simplicity the Schultz plan has some marked advantages. Practically all farm products marketed in Canada pass through a bottleneck of processing or retail handling. The making of compensatory payments on the basis of the records collected at such points would offer little difficulty. If the Norton-Working plan were adopted, with net sales as the basis of payments, the administrative difficulties would be comparable. The relevant problems in both cases
are the avoidance of duplication in payments and discrimination in favour of specialized feeders as against feeders growing their own feed. If payments under the Illinois plan were made on the basis of net farm income, the administrative difficulties would be much more formidable.

Schults' plan represents a compromise with an earlier position in which he maintained that prices should be used as a means of allocating resources and distributing goods; resort should be had to other means to raise income levels of farm families.¹ Such other means are apparently still to be used but are appropriate to a long run solution; compensatory payments are suggested as a device suitable in the short run to cushioning the impact of cyclically low prices for farm products upon the farm family and the farm business.

In conclusion either plan might lead to abuses if the parameters are determined in such a way as to favour agriculture at the expense of other industries. When compared, the writer believes that the Norton-Working proposal, as a variant of the parity income plan, lends itself more readily to such misuse. Moreover, the Schults proposal is more readily integrable with other measures designed to stabilise output and to reduce price uncertainty. It also offers some advantages from the point of view of administrative simplicity.

¹ T. W. Schultz. Redirecting Farm Policy, p. 65:

The price mechanism of farm products is not an appropriate means for supplementing the incomes of farm families. To manipulate farm prices in order to attain certain income goals leads to waste and losses on the production side. This means that tying farm prices to income parity is not an appropriate solution for low farm family incomes, nor does a better allocation of farm resources always improve the distribution of farm family incomes. The task of improving the income of farm families must be approached as a separate and additional problem to that of managing production. The ways and means of accomplishing this task must be designed specifically for the purpose of supplementing incomes.
IV. THE VALIDITY OF CANADIAN AGRICULTURE'S CLAIM TO "PARITY"

The term "parity" as applied to the prices of farm products and to farm income in Canada does not have the specific legal definition which it carries in the United States. This is simply because no legislation embodying such a definition has been passed. The term when applied to price carries a connotation of fairness, and of justice. Farmers, their organizations and their representatives in parliament have, upon occasion, asked for parity prices. The Dominion Minister of Agriculture, Mr. J. G. Gardiner, has of late been known to state that the "parity price" for wheat is $1.40 per bushel. It is not unlikely that each person who uses the term attaches a somewhat different meaning to it; each is affirming the right of the farmer to a "square deal". In this chapter we shall concern ourselves with the validity of this expressed claim for parity for Canadian Agriculture.

A. The Vulnerability of the Agricultural Industry to Fluctuations in Demand

In the semi-competitive enterprise economy of Canada, the agricultural industry has found itself extremely vulnerable to recurrent booms and depressions. The more easily recognized of the factors responsible for this vulnerability are fairly readily identified.

In the first place, agriculture does not curtail its output when all
farm product prices decline.¹ Were farmers to restrict output as prices fall they would be in a position to take advantage of whatever inelasticity there may be in the demand for farm products in order to increase their gross income.²


²The theory of the firm would indicate that, as the price of a farm
Secondly, there are marked rigidities in the prices of most goods which farmers buy. Since many firms in the industrial sector of the economy decrease output and attempt to maintain their prices when demand slackens, the prices of many commodities used in agricultural production do not decline to the same extent as prices received. The prices of machinery, repairs, fuel, twine, fertilizer and consumers' durable goods are fairly rigid. Farmers must also meet such fixed costs as taxes and interest which vary little with the general price level.

The net result is that the terms of exchange turn against agriculture.
and in favour of the rest of the economy when depressions in business activity occur. Not only are fluctuations in the price of foodstuffs reflected in farmers' gross cash income, but they are again reflected, and amplified, in net cash income for two reasons:

1. The prices of those commodities and services which farmers buy vary in the same direction but to a much lesser extent than the retail prices of foodstuffs.

2. Processors' margins are also subject to less instability than the retail price of foodstuffs thus magnifying the relative variations in the prices of farm products.

For these reasons net farm incomes are subject to a high degree of fluctuation with recurrent booms and depressions.

The author has constructed an index of prices received by Saskatchewan farmers for the period 1931-45 using a price base of 1935-39 = 100 and average annual marketings for the period 1935-44 as weights. The index of prices paid is that of the Dominion Bureau of Statistics for Western Canada and includes commodities and services used by farmers and farm living costs. Taxes and interest rates are included but wage rates are excluded. (See Price Index Numbers of Commodities and Services Used by Farmers. Dominion Bureau of Statistics. August 17, 1944.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Index of Prices Received (1935-39 = 100)</th>
<th>Index of Prices Paid (1935-39 = 100)</th>
<th>Ratio of Prices Received to Prices Paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>59.9</td>
<td>102.4</td>
<td>58.5</td>
</tr>
<tr>
<td>1932</td>
<td>52.8</td>
<td>98.2</td>
<td>53.8</td>
</tr>
<tr>
<td>1933</td>
<td>57.8</td>
<td>94.9</td>
<td>60.9</td>
</tr>
<tr>
<td>1934</td>
<td>76.4</td>
<td>98.1</td>
<td>77.9</td>
</tr>
<tr>
<td>1935</td>
<td>83.3</td>
<td>97.7</td>
<td>85.3</td>
</tr>
<tr>
<td>1936</td>
<td>94.0</td>
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</tr>
<tr>
<td>1937</td>
<td>136.1</td>
<td>103.3</td>
<td>131.8</td>
</tr>
<tr>
<td>1938</td>
<td>107.1</td>
<td>101.6</td>
<td>105.4</td>
</tr>
<tr>
<td>1939</td>
<td>79.6</td>
<td>98.7</td>
<td>80.6</td>
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<tr>
<td>1940</td>
<td>85.8</td>
<td>104.7</td>
<td>81.9</td>
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<td>1941</td>
<td>93.0</td>
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<td>1942</td>
<td>110.3</td>
<td>115.4</td>
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<tr>
<td>1943</td>
<td>135.3</td>
<td>118.7</td>
<td>114.0</td>
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<tr>
<td>1944</td>
<td>158.3</td>
<td>121.3</td>
<td>130.5</td>
</tr>
<tr>
<td>1945</td>
<td>160.1</td>
<td>121.0</td>
<td>132.3</td>
</tr>
</tbody>
</table>
Although total agricultural output for the Dominion is relatively stable, the output of particular crops and of particular geographic areas is subject to wide fluctuations.\(^1\) The effects upon gross income of simultaneous troughs in the time series of output and prices need no emphasis. Canadian farmers, at least, well remember the cumulative effects of drought and depression upon their income. Standards of living slip to desperately low levels during these periods\(^2\) and many farm families are forced to accept relief.

The human suffering which results from those periodic economic catastrophes, known euphemistically as business cycles, is by no means confined to agriculture. One of the prime functions of professional economists should be to advise governments as to effective ways and means of reducing these fluctuations and of cushioning the impact of those effects which it is not possible to eliminate. All citizens of a political community have a right to expect their governments to do everything

\(^1\)These wide fluctuations may be indicated by the variation in the Canadian wheat crop in the decade from 1928 to 1937. Wheat production varied from a low of 180 million bushels in the latter year to a high of 567 million bushels in the former. The range of variation for the province of Saskatchewan, the largest wheat producing province, is even greater, ranging from 36 to 321 million bushels for these two years. For smaller areas, such as municipalities, the range would be still higher and for individual farms output would range from near zero to, say, 30-40 bushels per acre. The selection of the decade 1928-37, while suitable for purposes of illustration, is not typical since it includes both the highest and lowest crops on record.

\(^2\)See G. Britnell, The Wheat Economy. Toronto: University of Toronto Press. 1939. This gives a description of the straits to which many farm families in Saskatchewan were reduced during the thirties.
possible to protest and improve their collective standard of living. Farm people share this expectation with other citizens and, in addition, may legitimately demand that the impact of depression shall not impinge more heavily upon their industry because of their lesser ability to protect themselves. It is in these general terms that the concept of parity has significance.

B. The Validity of Income Parity

While the economic validity of parity prices and parity income as legally defined in United States farm legislation is open to criticism, the validity of this broader meaning of "parity" as a social objective is worthy of closer examination. We have already seen that one factor which serves to intensify the impact of "business cycles" upon agriculture is

1 The term "parity" is here used to designate a net return to those factors of production in agriculture which is equivalent to their marginal productivities in an economy in which a reasonable degree of free competition, including mobility of factors and knowledge of alternative opportunities on the part of factor owners, exists. The lack of such a "reasonable" degree of competition results in agriculture's lot during depression being worse than it would be if such a degree of competition existed; the significance and implications of the concept of parity as legally embodied in the legislation of the United States will be examined later.

2 The Parity Price goal as originally defined in the Agricultural Adjustment Act of 1933 was the objective of re-establishing "prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities in the base period." The Agricultural Adjustment Act of 1938 defines parity income as follows: Parity as applied to income, shall be the per capita net income of individuals on farms from farming operations that bears to the per capita net income of individuals not on farms the same relation as prevailed during the period from August 1909 to July 1914.
the rigidity of the structure of industrial prices relatively to that of farm prices. Since a part, at least, of this rigidity of industrial prices is attributable either to the inability or reluctance of the government to enforce conditions approaching "pure" competition, farmers have some claim to compensation.

Closely related to this valid claim is another stressed by Professor Schults.¹ Agricultural output is not curtailed during periods of depression and all consumers are thereby enabled to secure their food and fibre requirements much more cheaply than would be the case if agriculture, following the lead of industry, shrank its output as prices fell. Since this maintenance of output is desirable, farmers rather than being encouraged to emulate industry in contracting output, should be encouraged and compensated for keeping up production when prices fall.

A second argument which carries some weight, particularly in the Canadian economy, is that the producers of industrial products enjoy tariff protection and hence are enabled to charge higher prices in the domestic market.² Farmers, on the other hand, sell their export products on the world market and Canadian tariff barriers are, therefore, incapable of increasing the prices which they may charge. This is not, of course, equivalent to saying that Canadian farmers are free traders. Apparently they, like anyone else, prefer higher prices for what they have to sell


²All consumers in Canada, not only farmers, pay considerably more for durable consumers' goods than they would have to pay if they were free to import them without the necessity of lifting them over a substantial tariff wall.
and lower prices for those goods which they buy. The tariffs on butter, fruit, tobacco and the outright prohibition of either margarine imports or domestic production are cases in point. \(^1\)

Thirdly, Canadian farmers responded vigorously to the call for increased food production during the war and reconstruction period. It may not be morally justifiable then, once the extraordinary demand for food has abated, to simply say to them, "we no longer need this volume of foodstuffs as the now lower prices indicate. Adjust your firms to these lower prices, curtail your output and carry on as best you can." \(^2\)

\(^1\)The degree of viciousness of Canada's tariff structure is, in the opinion of the writer and to the extent of his knowledge, exceeded only by that of the United States. Most of those Canadian farmers who favour free trade probably do so because lower tariffs would benefit them economically. Where tariffs offer advantages to farm groups a high tariff may be expected; the rate on "manufactured" tobacco, for example, is $2 per pound.

There is need for some unbiassed research into the cost structures of protected industries in order to throw light on the following problems among others:

(1) Could these protected firms compete, without benefit of tariff protection, with firms in the United States and elsewhere producing comparable goods?

(2) If the costs of Canadian firms are higher than those of American firms are these higher costs to be attributed to the smaller markets open to the Canadian firms? A reciprocal lowering of tariffs by both the United States and Canada might remove the basis of this argument. For an analysis, based upon available secondary data, of the difference in price between the prices of light passenger cars in Canada and the United States, see O. J. McDiarmid, Commercial Policy in the Canadian Economy. Cambridge, Mass.: Harvard University Press. 1946. pp. 360-370. Tariffs on farm machinery and tractors entering Canada have been removed.

\(^2\)The opinion of the Chairman of the Agricultural Prices Support Board, Mr. J. G. Taggart, on this point may be of interest:

"If the farmer expanded his facilities and incurred increased operating costs to produce a product in response to the demand of the country, it is the duty of the country to protect him in the process of any necessary liquidation.

A fourth valid claim to consideration arises out of the fact that people in agriculture have a higher fertility rate than people in the non-farm sector of the national community. It is they, as pointed out in the next chapter of this thesis, who are raising, training and educating the young people who are moving into urban employment. Since this is a direct transfer of capital out of agriculture, it is not unreasonable that the recipients of this resource bear a part of the cost of producing it. The cogency of this argument has been recognized by the government of Canada in implementing a program of family allowances, the cost of which is met by the taxpayers as a group.

Dr. A. G. Hart suggests that, even though farmers are not able to advance logical grounds upon which they should receive a larger share of the national income, yet nevertheless, if they do feel that they have a very strong moral claim, there may be good reason for intervention.

In every field of social ethics we find ourselves obliged to make some concessions to the moral views of influential groups on the ground that a sense of injustice is an evil, however much we might debate the foundation of it.

Although we must take cognizance of the existence of any moral views which are held by a large and influential section of the community, this recognition does not absolve us from the duty of examining the basis of these claims and the effects which granting them would have upon other groups and upon the economy as a whole. Should the moral claim be invalid, and the effects of the concessions demanded inconsistent with the welfare

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of other groups and with economic progress, this analysis should be brought to the attention of the public and an effort made to secure a modification of the claims of the particular group in question. A case in point is the claim of American farmers for parity prices, as legally defined, and the efforts which American economists and administrators have made to analyze and modify these claims.

Many of those people receiving very low incomes are to be found in agriculture. Few would deny that such low income receivers are entitled to help in improving their lot. It should also be remembered, however, that low income receivers in agriculture are no more entitled to help than those in any other part of the economy. This suggests that means should be sought to improve the incomes of low income receivers in any particular industry.

C. The Non-Validity of Income Parity

The most prominent invalid claim which is put forward in Canada, respecting parity of income, is that farmers are entitled to a share of the national income which bears the same relation to the total national income as the number of persons on farms bears to the total population. This claim is usually expressed by some such slogan as "a fair share of the national income for agriculture." There is certainly no economic

1"Economic progress" is here defined as the continuous enlargement of a non-fluctuating national income and/or of the leisure time of resource owners, consistent with the desires of consumers. That is, the maximization over time of a non-fluctuating stream of those goods, services and leisure preferred by consumers.
reason why any group should receive a proportionate share of the national income. To guarantee a proportionate share to any group is to block economic progress. If farmers are to receive a proportionate share, why not shoemakers, boilermakers, bartenders and schoolteachers? To state the proposition in these terms is to underline its absurdity.¹

If a proportionate share of the national income is guaranteed to any particular group the total net output of any such a group must exchange for a fixed percentage of the total net output of the rest of the economy.² It is admitted that this would not mean that any given

¹Johnson has criticized the parity income concept in these words.

One of the worst of the pseudo-statistical myths perpetrated upon the American public has been that of agricultural income parity. The belief that any period can be used to measure the fair share of the national income which should go to agriculture or any other sector of the economy is contrary to all experience and it has no support in economic analysis. Changes in degree of relative unemployment, tastes, technology and differences in mobility are all factors that influence the part of the national income that any group receives. The fact that this particular myth has been embodied in legislation makes it even more deleterious. Even worse yet is the consideration that it has led to steps that do not in any way correct the underlying conditions which may result in agriculture being depressed.


²On the assumption that the group in question receives its proportionate share of the national income through sales of its product. If the demand for the products which it produces is inelastic, this income goal might be attained by restriction of output. If the demand is elastic government purchase and destruction or dumping abroad, or, if possible, division of the market into parts with varying inelasticities of demand and the practice of price discrimination might accomplish the objective.
A firm in an industry would receive a fixed return for its output unless there were only one firm in the industry. In this latter case the output of this firm, no matter how small, would still exchange for the same quantity of other goods. If this proportionate share of the national income were guaranteed through the price of the product, the price per unit as output decreased would become increasingly higher. What the proposal would amount to if taken literally and seriously would be to guarantee a fixed income to each industry. Shoemakers would receive the same total revenue from the sale of one million pair of shoes as they would from the sale of two million pair. The government would have to act as the purchasing agent in order to secure this price for producers, or alternatively permit shoes to sell at the market price and pay consumers the difference.

The great objection to the concept of a "fair", or proportionate, share of the national income to each group would be the obstruction which it would place in the way of the price system in allocating resources. We live in a dynamic, not a static economy. Over time our tastes change, technology changes and weather varies. If, as total income to society increases, we wish as consumers, to spend a smaller percentage of our money income on food and more on other goods, there must be a shift of resources out of agriculture and into these other industries. The guaranteeing of a fixed proportion of the national income to people engaged in agriculture would block such a shift in resources.

1 The demand curve for the particular firm would become a rectangular hyperbola, i.e., \( p = \frac{c}{q} \), and marginal revenue after the first unit would become zero. The firm would install one "unit" of productive equipment in an effort to minimize its total costs and still produce some product.

2 Assuming the national income to remain constant in the short run.
D. The Non-Validity of Price Parity

If there is any single point upon which American economists are in agreement, it is that parity prices, as defined by law in the United States, are inadequate, outmoded and uneconomic. We propose only to recapitulate here the bare outline of the arguments against a parity price structure. So far Canada has escaped this particular plan to hobble herself economically; it can only be hoped that the results of the American experiment will prove sufficiently clear as to enable her to profit from her neighbour's trials.

Parity prices represent an effort to use prices as ends or goals rather than as means. In a price economy prices constitute the signposts by which enterprises determine how much of what commodities consumers want and are willing and able to pay for. The proponents of parity prices support parity either for the effect which these prices will have upon producers' income or for the effect which they think parity prices will have. If they were asked to determine the quantities of the various farm products which they believed American farmers should produce and then requested to estimate the relative prices which would be necessary to call forth these products, it is a fairly safe guess that the resulting price structure would differ greatly from the parity price structure. This then, in essence, is the fallacy of parity prices.

Parity is based upon the price structure of some period in the past during which its proponents either believed the purchasing power of farm products was a fair one, from the farmers' point of view, or, was more favourable than for any other period available. Policy makers have found it expedient to raise the level of parity prices by selecting different base periods.
for various commodities. The object in so selecting these prices has been for their income effects and not for their role as determinants of an equilibrium output. The result has been a haphazard structure of prices, whose shortcomings are becoming increasingly evident.

Parity prices if attained are not in conformity with underlying supply and demand conditions. They are not equilibrium prices; they encourage the production of too much of some and not enough of other commodities. Although they may have represented equilibrium prices during the period in which they prevailed, there is small probability of their ever doing so again. This is because human tastes have altered, population has increased, the technology of production has improved, and at different rates for different commodities, and the supply of available resources has changed—in short, demand and supply are completely different from what they were in the base period. The present parity price of horses and mules is an extreme, but a forceful, example of a price goal which makes no sense from an economic viewpoint.

Other reasons may be cited for the inadequacy of parity prices. Given the one above, no others are necessary; parity prices derived from a historical base and therefore determined without reference to the job for which they are intended are unworkable. They represent a step backwards; Canadian policy makers have avoided them despite all too frequent lip service. The availability of other and more suitable means of maintaining minimum levels of farm income may preclude resort to the parity price device.

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1Since they are average prices for the base period, the parity price structure probably never actually existed at all.

V. POPULATION AND AGRICULTURE IN THE CANADIAN ECONOMY

Any price policy, whether free market or controlled, is going to exert an important influence upon the allocation of resources, both human and non-human, within industries and among industries. The writer is particularly concerned with the effects of any proposed price policy upon the allocation of resources between agriculture and the rest of the economy and also within agriculture.

Since labour, including that of the operator and his family and hired labour, earns a larger share of the net return in agriculture than any other factor and since it is with the welfare of the human factor that the greater part of all human activity is concerned, the distribution of the population among and between industries is of the greatest importance. One of the necessary conditions for equilibrium and for the maximization of total product in the economic system is the equation of all marginal value productivities in alternative uses. If, moreover, we are prepared to assume that all individuals have knowledge of various alternatives and are free to move and still no movement occurs, then the social product must be presumed at a maximum.

Any economic policy which hinders the movement of resources toward uses which will enhance their marginal value product must be classed as uneconomic in the sense that such a hindrance is obstructing the attainment of a larger net product. Is this a factor which must be watched
in formulating a price policy for Canadian agriculture? Is there a movement of people off the farms and into cities and if so does this movement represent a better distribution of the population in the sense of increasing the national income of Canada?

A. Differential Rates of Growth of Urban and Rural Population

Throughout the period since Confederation the growth of population in Canada has been characterized by an increasing percentage of the population residing in cities, towns and villages. This trend is indicated by the following table:

Table 2

Percentage Distribution of Rural and Urban Population
Canada, by Census Years, 1871-1941

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban (%)</th>
<th>Rural (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871</td>
<td>19.6</td>
<td>80.4</td>
</tr>
<tr>
<td>1881</td>
<td>25.6</td>
<td>74.4</td>
</tr>
<tr>
<td>1891</td>
<td>31.8</td>
<td>68.2</td>
</tr>
<tr>
<td>1901</td>
<td>37.5</td>
<td>62.5</td>
</tr>
<tr>
<td>1911</td>
<td>45.4</td>
<td>54.6</td>
</tr>
<tr>
<td>1921</td>
<td>49.5</td>
<td>50.5</td>
</tr>
<tr>
<td>1931</td>
<td>53.7</td>
<td>46.3</td>
</tr>
<tr>
<td>1941</td>
<td>54.3</td>
<td>45.8</td>
</tr>
</tbody>
</table>


*bThe population residing in cities, towns and incorporated villages has been defined as "urban"; that outside of such localities, as "rural". The classification is, therefore, based upon provincial statute determining the necessary conditions for incorporation and is not, for this reason, uniform throughout the Dominion. The data include the Yukon and Northwest Territories.
The degree of urbanization by province varies greatly. In 1941, Prince Edward Island had the highest percentage of rural dwellers (74), followed by New Brunswick (69), Saskatchewan (67), Alberta (61), Manitoba (56), Nova Scotia (54), British Columbia (46), Ontario (38) and Quebec (37).

The normal movement of rural people to cities and towns was retarded during the depression years. Certainly this retardation is not to be attributed to an improvement in the earnings of those in agriculture relatively to those employed in non-farm jobs. It is to be explained rather by a return of the unemployed to the farm. Although net returns to people in agriculture improved greatly toward the end of the decade1 the off-farm

1Unfortunately no continuous series of estimates of net farm income in Canada for any considerable period of time exists. National income estimates are being revised and the new series has been published back to 1938 only. Relatives of net farm income have been constructed for the period 1926-1945 by combining two series and using the year 1938 as a base. The first series, for the period 1926-38, is taken from Appendix 4, Report of the Royal Commission on Dominion-Provincial Relations, Ottawa, 1939, and the continuation of this series as published in National Income 1937-40 which was prepared for the Dominion-Provincial Conference of 1941.

The above estimates of net farm income take no account of inventory change and include rent paid to non-farm and other farm landlords.

Estimates of net farm income from 1938-45 are from: National Accounts, Income and Expenditure 1938-45, Dominion Bureau of Statistics, Ottawa, 1946. They include inventory changes and government payments and exclude net rent paid either to farm or non-farm landlords. They are therefore defined as net income of farm operators from their own farming operations.

Relatives of Net Farm Income, Canada, 1926-1945
(1938 = 100)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>173</td>
<td>166</td>
<td>194</td>
<td>164</td>
<td>95</td>
<td>53</td>
<td>34</td>
<td>41</td>
<td>62</td>
<td>69</td>
<td>93</td>
<td>100</td>
<td>100</td>
<td>116</td>
<td>126</td>
<td>141</td>
<td>258</td>
<td>236</td>
<td>293</td>
<td>250</td>
</tr>
</tbody>
</table>

The failure of the estimate of net farm income for 1937 to take inventory changes into account results in a marked overestimate as livestock and grain inventories were seriously depleted in the Prairie Provinces as a result of the disastrous drought that year.
movement of people increased as jobs again became available in the non-farm sector of the economy. The data in Table 3 indicates the same general trend as that in Table 2 but is useful in that a separation between farm and non-farm rural population is made and also that an estimate of urban and farm population as of 1944 is attempted.

Table 3

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban No.(000)</th>
<th>%</th>
<th>Farm No.(000)</th>
<th>%</th>
<th>Rural Non-farm No.(000)</th>
<th>%</th>
<th>Canada No.(000)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1911</td>
<td>4,107</td>
<td>57.0</td>
<td>2,663</td>
<td>37.0</td>
<td>422</td>
<td>6.0</td>
<td>7,192</td>
<td>100</td>
</tr>
<tr>
<td>1921</td>
<td>5,150</td>
<td>58.7</td>
<td>3,143</td>
<td>35.8</td>
<td>482</td>
<td>5.5</td>
<td>8,775</td>
<td>100</td>
</tr>
<tr>
<td>1931</td>
<td>6,384</td>
<td>61.6</td>
<td>3,444</td>
<td>33.2</td>
<td>535</td>
<td>5.2</td>
<td>10,363</td>
<td>100</td>
</tr>
<tr>
<td>1941</td>
<td>7,185</td>
<td>62.5</td>
<td>3,679</td>
<td>32.0</td>
<td>626</td>
<td>5.5</td>
<td>11,490</td>
<td>100</td>
</tr>
<tr>
<td>1944</td>
<td>7,751</td>
<td>65.0</td>
<td>3,553</td>
<td>30.0</td>
<td>623</td>
<td>5.0</td>
<td>11,927</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Canada Year Book 1945, p. 122. Population is as of June 1 for all years except 1944, which is as of March 31. It will be noted that there is a serious discrepancy between Table 3 and Table 2. This is attributable to the different definitions of "urban" and "rural" employed. Table 2 is based upon legal definition. The estimates in Table 3, as explained in a letter by its author N. Keyfitz, "represent the number of persons in counties which were predominantly rural, predominantly urban, etc. This tabulation of whole counties was of use in finding out the movement of population from rural to urban places in 1941-44 compared with earlier movement." Both tables are presented here since both represent the trend of relative and absolute growth of the urban population and since the first permits a provincial comparison and the second an estimate for an intercensal year, 1944. The census estimate of "farm population" as of June 1941 is 3,279,000 or 28.5% of the total population as compared with 3,679,000 or 32.0% of the total as given above."
One rather significant fact is pointed up by this table. This is that the percentage decrease in the farm population and the percentage increase in the urban population were greater during three years of World War II than for the decade of the thirties and nearly as large as for the decade of the twenties. There will have been some movement back to the farms as war production was curtailed and service personnel demobilized, but it seems unlikely that the general picture will have been altered significantly. This war time movement off farms, amounting to 285,000 from 1941-44, has exceeded the natural increase of 159,000 during this period. The metropolitan areas of Montreal, Toronto, Vancouver, Halifax, Hamilton, Ottawa, Winnipeg, Calgary and Edmonton have enjoyed the greatest increases in population. Nathan Keyfitz of the Social Analysis Branch of the Dominion Bureau of Statistics, draws this conclusion:1

For the first time in the history of Canada the total population of farm counties seems to be falling. This may arise partly from declines in rural fertility rates, which no longer balance out-migration. The general direction of movement in the decade 1931-41 was from farm to metropolitan places, but it took place much less consistently. The movement from 1941-44 showed an acceleration of the trend from farm to large city which was proceeding at an average rate throughout the period 1931-41.

The trend in the rural-urban movement of population has of course resulted in pronounced differences in the rates of growth of the various provinces during the decade of the thirties. The deceleration in the growth of the Prairie Provinces has been most marked. From 1911-21 the population of these three provinces increased by 47.3%; from 1921-31

1Canada Year Book 1945. p. 122.
by 20.3%; and from 1931-41 by 2.9%. From 1941-44 all three provinces lost population, and Saskatchewan, the most predominantly agricultural of the three, has again lost most heavily. The traditional role of the Prairie Provinces as an outlet for surplus population from other parts of Canada, Europe and the United States has been reversed and these provinces are now exporting population.

B. Gainfully Occupied in Agriculture and Other Occupations

Data on the numbers of people gainfully occupied in agriculture indicate essentially the same trend as the foregoing information on relative numbers of people living in urban and rural areas.

Table 4
Numbers Gainfully Occupied in Canada 1901-1941; Agriculture and All Other Occupations

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>All Other Occupations</th>
<th>Total Gainfully Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>716,860</td>
<td>1,065,972</td>
<td>1,782,823</td>
</tr>
<tr>
<td>1911</td>
<td>933,735</td>
<td>1,789,899</td>
<td>2,723,634</td>
</tr>
<tr>
<td>1921</td>
<td>1,041,544</td>
<td>2,131,625</td>
<td>3,173,169</td>
</tr>
<tr>
<td>1931</td>
<td>1,131,845</td>
<td>2,795,385</td>
<td>3,927,230</td>
</tr>
<tr>
<td>1941</td>
<td>1,083,816</td>
<td>3,112,135</td>
<td>4,195,951</td>
</tr>
</tbody>
</table>

Source: Canada Year Book 1943-44, p. 1066. The data for 1941 does not include persons on active service. If males on active service who were gainfully employed in agriculture prior to enlistment are included, the number gainfully employed in agriculture is increased to 1,104,579.

1Data secured by correspondence with the Dominion Bureau of Statistics indicates a loss of 25,000; 86,000; and 15,000 people for Manitoba, Saskatchewan and Alberta respectively during the period from June 1941 to March 1944.

2As judged by percentage of males gainfully occupied in agriculture. In 1941, 67.5% of the gainfully occupied males in Saskatchewan were engaged in agriculture as compared with 56.1% in Alberta and 42.1% in Manitoba. Canada Year Book 1943-44, p. 1049.

3A "gainful occupation" is defined in the census as one "by which
The percentage distribution of the gainfully occupied brings out the change in relative numbers employed in agriculture and other occupations more clearly.

Table 5

Percentage Distribution of the Gainfully Occupied in Canada 1901-1941; Agriculture and All Other Occupations a

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture</th>
<th>All Other Occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>40.2</td>
<td>59.8</td>
</tr>
<tr>
<td>1911</td>
<td>34.3</td>
<td>65.7</td>
</tr>
<tr>
<td>1921</td>
<td>32.8</td>
<td>67.2</td>
</tr>
<tr>
<td>1931</td>
<td>28.8</td>
<td>71.2</td>
</tr>
<tr>
<td>1941</td>
<td>25.8</td>
<td>74.2</td>
</tr>
</tbody>
</table>

aSource: Calculated from Table 4.

It is apparent that the absolute number gainfully occupied in agriculture has remained relatively constant since 1921 while the percentage of the gainfully occupied in agriculture has declined 7 per cent during this period. From the standpoint of the proportion of the total working force engaged, therefore, agriculture is a declining industry, or in other terms, the total labour input in agriculture has remained constant during the past twenty years while that in all other occupations has increased by a third.

the person who pursues it earns money or in which he assists in the production of marketable goods". Children of working age, that is, 14 years of age or over, assisting parents with farm work, or in other family enterprises, in a "no pay" capacity were reported as having a gainful occupation; but daughters helping in the domestic work of the home without pay were not included.
C. Movement of Population Within Agriculture

Although overall numbers engaged in the agricultural industry for the Dominion have remained fairly stable since 1941 this stability in the whole should not be allowed to obscure important changes in component parts. Between 1921 and 1941 the number of persons employed in agriculture in the Maritimes declined. A small decrease in Ontario was a little more than balanced by an increase in Quebec while gains in the Prairie Provinces offset losses in the Maritimes. These shifts are summarised in Table 6.

Table 6

Numbers of Persons Gainfully Employed in Agriculture, a Canada and Provinces, Census Years, 1921-1941
(Thousands)

<table>
<thead>
<tr>
<th>Province</th>
<th>1921</th>
<th>1931</th>
<th>1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prince Edward Island</td>
<td>18.5</td>
<td>18.4</td>
<td>16.7</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>49.2</td>
<td>44.0</td>
<td>37.6</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>47.0</td>
<td>46.3</td>
<td>41.8</td>
</tr>
<tr>
<td>Quebec</td>
<td>221.0</td>
<td>230.5</td>
<td>255.1</td>
</tr>
<tr>
<td>Ontario</td>
<td>295.1</td>
<td>305.3</td>
<td>270.3</td>
</tr>
<tr>
<td>Manitoba</td>
<td>86.9</td>
<td>93.4</td>
<td>92.3</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>174.5</td>
<td>204.5</td>
<td>187.4</td>
</tr>
<tr>
<td>Alberta</td>
<td>114.2</td>
<td>145.7</td>
<td>141.2</td>
</tr>
<tr>
<td>British Columbia</td>
<td>35.1</td>
<td>43.6</td>
<td>41.6</td>
</tr>
<tr>
<td>Canada</td>
<td>1,041.5</td>
<td>1,131.8</td>
<td>1,083.8</td>
</tr>
</tbody>
</table>

D. Relative Rates of Increase of Improved Acreage and Numbers of Farms

While the number of people gainfully occupied in agriculture in Canada has remained relatively constant over the past two decades, the improved acreage in farms has increased from 70.8 to 92.4 million acres. Relatively this represents an increase of 30.5 per cent for the Dominion as a whole although the improved farm acreage in the Prairie Provinces increased by 46 per cent during this period. The area of improved farm land in Central Canada (Ontario and Quebec) remained virtually constant while that of the Maritimes actually declined. British Columbia has shown a large relative increase during the two decades although the total is still less than one million acres and only slightly greater than that of Nova Scotia.

Table 7

Total Improved Farm Acreage, *a*
Canada and Provinces, Census Years 1911-1941
(Million acres)

<table>
<thead>
<tr>
<th>Province</th>
<th>1921</th>
<th>1931</th>
<th>1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prince Edward Island</td>
<td>0.8</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>1.0</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>1.4</td>
<td>1.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Quebec</td>
<td>9.1</td>
<td>9.0</td>
<td>9.8</td>
</tr>
<tr>
<td>Ontario</td>
<td>13.2</td>
<td>13.3</td>
<td>13.4</td>
</tr>
<tr>
<td>Manitoba</td>
<td>8.1</td>
<td>8.5</td>
<td>9.8</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>25.0</td>
<td>33.5</td>
<td>35.6</td>
</tr>
<tr>
<td>Alberta</td>
<td>11.8</td>
<td>17.7</td>
<td>20.1</td>
</tr>
<tr>
<td>British Columbia</td>
<td>0.5</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Canada</td>
<td>70.8</td>
<td>85.7</td>
<td>92.4</td>
</tr>
</tbody>
</table>

The greater part of the increase in total improved farm acreage is to be found in larger improved acreage per farm rather than in any great increase in the number of farms. Table 8 indicates a very small growth in total farm numbers since 1921.

Average improved acreage per farm has increased by about one-fourth since 1921 with the largest increases both absolutely and relatively occurring in the Prairie Provinces.

The general conclusion pointed up by these overall statistics on the agricultural industry in Canada seems fairly clear. The number of people engaged in the industry has remained relatively constant since 1921 although losses have occurred in the Maritimes and Ontario while Quebec and particularly the Prairie Provinces have gained. The improved acreage in farms over this period has increased by nearly a third for the country as a whole while improved acreage in the Prairie Provinces has increased by nearly one half. Similarly the number of farms in the Dominion, has, perhaps, increased by 3 per cent in the twenty year period with increases in the Prairies and Quebec offsetting declines in the Maritimes and Ontario. The total number of farms increased little during the decade of the thirties and, had it not been for the addition of 19,000 new farms in Quebec, farm numbers would have slipped back to the 1921 level.
Table 8
Number of Farms,
Canada and Provinces, Census Years 1921-1941
(Thousands)

<table>
<thead>
<tr>
<th>Provinces</th>
<th>1921</th>
<th>1931</th>
<th>1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prince Edward Island</td>
<td>13.7</td>
<td>12.9</td>
<td>12.2</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>47.5</td>
<td>39.5</td>
<td>33.0</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>36.7</td>
<td>34.0</td>
<td>31.9</td>
</tr>
<tr>
<td>Quebec</td>
<td>137.6</td>
<td>135.9</td>
<td>154.7</td>
</tr>
<tr>
<td>Ontario</td>
<td>198.0</td>
<td>192.1</td>
<td>178.2</td>
</tr>
<tr>
<td>Manitoba</td>
<td>53.3</td>
<td>54.2</td>
<td>58.0</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>119.5</td>
<td>136.5</td>
<td>138.6</td>
</tr>
<tr>
<td>Alberta</td>
<td>82.9</td>
<td>97.4</td>
<td>99.7</td>
</tr>
<tr>
<td>British Columbia</td>
<td>22.0</td>
<td>26.1</td>
<td>26.4</td>
</tr>
<tr>
<td>Canada</td>
<td>711.3</td>
<td>728.4</td>
<td>732.6</td>
</tr>
</tbody>
</table>


A farm, for census purposes, is all the land located in one municipality which is directly farmed by one person conducting agricultural operations, either by his own labour or with the assistance of members of his household or of hired employees. It may consist of a single tract of land, or of a number of separate tracts held under different tenures. In order to be reported as a farm, such land must be of one acre or more in extent and have produced during the calendar year preceding the census agricultural products to the value of $50 or more, or be under crops or employed for pasture in that year.

Census "estimates" of numbers of farms are biased upwards owing to the practice of treating parts of the same farm located in different census enumeration districts as separate farms. In taking the 1941 census a partial concession to reality was made in that parts of farms lying within the same municipality were re-combined into single farms. To the extent that the parts are located in different municipalities, duplication still exists. If the 1941 estimate of numbers of farms is biased upward less than those of 1931 and 1921 the increase in the actual number of farms will be greater than indicated in Table 8.

The extent of the upward bias in the 1941 census estimate of numbers
E. Fertility Rates in the Urban and Rural Sectors of the Economy

Although the statistics on Canada's population are not organized in such a way as to permit a comparison of net reproduction rates\(^1\) for the farm (or rural) population as compared with the non-farm (or urban) population\(^2\), the available data indicate a differential in favour of the former. The following table showing the mean standardized (i.e., standardized for age of mother) number of children ever born to married women by occupation-type class of husband leaves little doubt as to the relative fertility of farm and non-farm people.

of farms may be approximated by a comparison with the number of farm operators. There were approximately 672,000 operators reporting in 1941 and this is probably much closer to the actual number of farms than the 732,000 listed as such. The 1941 census estimate of farm numbers would therefore be biased upward by about 9 per cent.

This bias does not render these data on farm numbers useless for the purpose of indicating the trend in the number of farms over a period of time. Such biased data should certainly not be used for the purpose of calculating an average cash income per farm as was done in the Reference Book on Agriculture for the Dominion Provincial Conference 1945, pp. 97-98. The dispersion in such an average makes it meaningless enough without this added bias.

The net reproduction rate is an estimate of the average number of girls that would be produced by a group of newly-born girls if the fertility and mortality rates of the period observed were to continue unchanged throughout their lifetime. A net reproduction rate of 1.5, for instance, means that the population will ultimately grow by 50 per cent every generation, while one of 0.75 means an eventual fall of 25 per cent every generation.

Dr. Enid Charles, census research specialist, in the Dominion Bureau of Statistics, summarizes the difficulties in the way of obtaining these data for Canada, as follows:
(a) There are no life tables either by occupation or for rural versus urban.
(b) Births by place of residence have hitherto only been tabulated for cities and towns of 5,000 and over, and for remaining parts of counties.

Private correspondence of July 5, 1946.
Table 9

Fertility by Occupation-Type Class

Mean standardised number of children ever born to married women by occupation-type class of husband

<table>
<thead>
<tr>
<th>Occupation-type class</th>
<th>Number of Occupations</th>
<th>Mean Standardised Fertility Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Professional</td>
<td>10</td>
<td>2.02</td>
</tr>
<tr>
<td>II. Clerical</td>
<td>4</td>
<td>2.21</td>
</tr>
<tr>
<td>III. Trade and Finance</td>
<td>10</td>
<td>2.39</td>
</tr>
<tr>
<td>IV. Public Service</td>
<td>4</td>
<td>2.82</td>
</tr>
<tr>
<td>V. Personal Service</td>
<td>8</td>
<td>2.84</td>
</tr>
<tr>
<td>VI. Transport and Communication</td>
<td>16</td>
<td>2.98</td>
</tr>
<tr>
<td>VII. Manufacturing and Mechanical</td>
<td>32</td>
<td>3.11</td>
</tr>
<tr>
<td>VIII. Construction</td>
<td>8</td>
<td>3.35</td>
</tr>
<tr>
<td>IX. Labourers (not in primary occupations)</td>
<td>1</td>
<td>3.98</td>
</tr>
<tr>
<td>X. Primary occupations</td>
<td>7</td>
<td>4.54</td>
</tr>
<tr>
<td>Farmers</td>
<td></td>
<td>4.29</td>
</tr>
</tbody>
</table>


In addition to this marked difference in fertility among occupational groups there is also considerable variation as among provinces within any occupational group. This inter-provincial differential for primary occupations is given in Table 10. The gainfully occupied in agriculture constitute about 84 per cent of the gainfully occupied in all primary occupations. The high fertility rate of Quebec is found to be associated with high proportions of French-speaking, of Roman Catholics, and with relatively less advanced education.
Table 10

Fertility in Primary Occupations by Province, 1941

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Mean Standardised Fertility Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec</td>
<td>5.45</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>4.77</td>
</tr>
<tr>
<td>Manitoba</td>
<td>4.25</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>4.19</td>
</tr>
<tr>
<td>Alberta</td>
<td>3.92</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>3.88</td>
</tr>
<tr>
<td>Ontario</td>
<td>3.25</td>
</tr>
<tr>
<td>British Columbia</td>
<td>3.17</td>
</tr>
</tbody>
</table>

*aSource: Bulletin No. F3, Dominion Bureau of Statistics, 1945, p. 15. The data exclude populations in cities of over 100,000 population.

Thus with approximately constant numbers gainfully occupied in agriculture and with higher fertility rates prevailing among farm people, it is essential that young farm people be permitted to leave the farms and find employment elsewhere. This necessary movement represents a shifting of labour into occupations where its marginal net product is higher. This continual readjustment therefore tends to increase the national product and to increase the real incomes of both farm and non-farm people. During periods of economic stagnation, such as obtained during most of the decade of the thirties, this movement temporarily slowed down and even, for a time, reversed itself. Once higher levels of employment returned the dam was removed and the outflow from agriculture tended to make up for opportunities missed. This has certainly been true during the high level of employment associated with World War II when nearly as many people left the farm during a span of three years as
had during the preceding decade.\(^1\)

The differential fertility rates between farm and urban population together with subsequent transfers of the excess population out of agriculture constitute strong arguments in favour of the recently enacted Canadian Family Allowances Act.\(^2\) Schultz has stressed the fact that such transfers represent a transfer of investment without any compensating payment.

This question constantly arises: How much should be invested in the human agent and who should bear the cost? When we realize that many people migrate from the community in which they are reared to another community, it is clear that both communities are affected. The community that receives is interested in the quality of the human agent, preferring to add to its numbers individuals who are of good health, who have had at least a minimum education, and who have a social outlook consistent with democratic values. The community from which a person has migrated loses the investment it has made in the human agent, and the greater the investment the larger the loss.

It means, in substance, that the persons who migrate, each of whom has been a cost to the farm family and to the community in which he was reared, put in their appearance as a valuable resource free of charge in another community which has borne none of the cost of rearing them. This is not very different in principle than, for example, if one community were to manufacture a car that cost $1,000 or more and then sent it to another community as a free gift.

\(^1\)Canada Year Book 1945, p. 122. The latest data available indicate that the "back to the land" movement of war veterans may be comparatively light. Despite the generous provisions of the Veterans Land Act, financial assistance in establishing full time farming enterprises had been approved for less than 4,500 applicants up to May 31, 1946. (Correspondence, Department of Veterans' Affairs, June 21, 1946.) Most of these veterans are being established on farms purchased by T.L.A. and are not new farms. Many veterans will of course return to their own or parents farm without government assistance. Interennial estimates compiled by the Dominion Department of Labour indicate that there were 1,050,000 males gainfully occupied in agriculture in Canada in October 1945 as compared with 1,210,000 at April 1939, and a low of 950,000 at June 1943. (Correspondence with Dr. Oswald Hall, Research and Statistics Branch, Dept. of Labour, Ottawa, June 15, 1946.)

\(^2\)Family Allowances Act, 8 George VI, Chapter 40, August 15, 1944.

\(^3\)T.W. Schultz. Redirecting Farm Policy. p. 69.
Since there is a negative correlation between fertility rates and family income, this system of family allowances in a country with a progressive tax structure tends to equalize the distribution of income. Since a higher percentage of income received in the lower income brackets is spent for food the $250 million distributed annually under this measure should materially increase the effective demand for foodstuffs in Canada.

This differential in fertility rates in favour of the farm population and the farm-urban migration is not characteristic of Canada alone. In the United States in 1930 the fertility of the urban areas was only 86 per cent of that required to maintain a constant urban population while the fertility of the native whites on farms was 169 per cent of that necessary to maintain the level of the population. Nevertheless, the rural-farm population of the United States decreased from 31.4 millions in 1920 to 30.2 millions in 1940.\(^1\) The population of the cities is increasing while that of the farms is decreasing since the surplus population of the latter is moving to the urban areas. Moreover the war has drawn another 4 million people out of American agriculture thus reducing the farm population of the United States to about 26 million.\(^2\)

F. Prospective Population Changes in Canada and Their Effect Upon Agriculture

There is no need to deal with overall population changes in detail in this thesis but the general trend of population growth does bear

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\(^2\) Joint release, U. S. Bureau of the Census and Bureau of Agricultural Economics. May 2, 1946.
important implications for agriculture. The growth characteristics of the Canadian population have caused it to be classified as one of "incipient decline". Fertility rates are both relatively low and are still declining. The natural increase exceeds mortality largely because of the relatively high number of women in the 15-50 age group. As the population ages, i.e., the relative numbers in the higher age brackets increase, the total population will level off and may ultimately decline, provided there is no increase in immigration or fertility rates.

The rate of increase of the Canadian population has consistently decreased since the heavy influx of over 1.8 million immigrants during the first decade of this century. Table 11 gives the comparative census data for population increases since Confederation.

Table 11

The Population of Canada for Census Years and the Decennial Rates of Increase 1871-1941 *

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Increase for preceding decade</th>
<th>Percentage increase for preceding decade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871</td>
<td>3,689,257</td>
<td>635,553</td>
<td>17.2</td>
</tr>
<tr>
<td>1881</td>
<td>4,324,810</td>
<td>508,429</td>
<td>11.8</td>
</tr>
<tr>
<td>1891</td>
<td>4,833,239</td>
<td>538,076</td>
<td>11.1</td>
</tr>
<tr>
<td>1901</td>
<td>5,371,315</td>
<td>1,835,328</td>
<td>34.2</td>
</tr>
<tr>
<td>1911</td>
<td>7,206,643</td>
<td>1,581,306</td>
<td>21.9</td>
</tr>
<tr>
<td>1921</td>
<td>8,787,949</td>
<td>1,588,837</td>
<td>18.1</td>
</tr>
<tr>
<td>1931</td>
<td>10,376,786</td>
<td>1,129,869</td>
<td>10.9</td>
</tr>
<tr>
<td>1941</td>
<td>11,506,655</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Data from Canada Year Book 1943-44, p. 79.

1Frank W. Notestein. Population - the Long View. Food for the World. The Harris Foundation Lectures. Chicago: The University of Chicago Press. pp. 36-57. 1945. The second type, as classified by Notestein, is one of transitional growth and is characterized by high
During the first part of the period from 1911 to 1921 immigrant arrivals reached an all time high but fell off rapidly during World War I. Canadian casualties overseas, the influenza epidemic in Canada, British immigrants returning to the United Kingdom and emigration to the United States, all contributed to a reduction in the population increase during this second decade. Again during the twenties the exodus of emigrants, mainly to the United States, all but cancelled the arrivals of newcomers. The virtual cessation of immigration during the thirties, together with a decline in the birth rate accompanying widespread unemployment, reduced the decennial increase to the lowest for any intercensal period since Confederation. At the present time immigration has been virtually halted and, although birth rates have been stimulated by the high level of employment which has accompanied the war and immediate post-war years, the rate of natural increase is definitely

birth and death rates but since the mortality rate is declining more rapidly than the birth rate, the total population is still growing rapidly. However, the decline of the birth rate is also well established ultimately assuring a stationary population, although much further in the future than under type one. Examples are the U.S.S.R., Eastern Europe, Japan and Turkey.

The third type is one of high growth potential which has high birth and death rates and in which fertility rates show no sign of declining. As the spread of modern medicine and the availability of sufficient food reduces the death rate, the population will grow rapidly. Nettoest estimates this type to include nearly half the peoples of the world, e.g., Egypt, Central Africa, the Near East, Asia (exclusive of the Soviet Union and Japan), the islands of the Pacific and Caribbean and much of Central and South America. This factor complicates efforts to raise the standard of living of these people.

Immigration totalled 1.5 million; emigration 1.2 million. Canada Year Book 1945, p. 92.
declining. Despite the rather considerable variations among provinces
the gross reproduction rates\(^1\) since 1921 indicate this trend.

Table 12

Gross Reproduction Rates, Canada, Quebec and British Columbia
for Selected Years 1921-42

<table>
<thead>
<tr>
<th>Year</th>
<th>Canada</th>
<th>Quebec</th>
<th>British Columbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921-22</td>
<td>2.003</td>
<td>2.686</td>
<td>1.351</td>
</tr>
<tr>
<td>1928-29</td>
<td>1.683</td>
<td>2.121</td>
<td>1.185</td>
</tr>
<tr>
<td>1930-32</td>
<td>1.631</td>
<td>2.023</td>
<td>1.124</td>
</tr>
<tr>
<td>1938-39</td>
<td>1.336</td>
<td>1.586</td>
<td>1.029</td>
</tr>
<tr>
<td>1940-42</td>
<td>1.416</td>
<td>1.664</td>
<td>1.161</td>
</tr>
</tbody>
</table>


The province of Quebec consistently has the highest gross reproduction
rate of any province in Canada while British Columbia has the lowest. It
seems worthy of note though that the reproduction rate for Quebec is fall­
ing faster than that for any other province. The dispersion in the prov­
incial fertility rates has been decreasing during the past twenty years.
Although fertility rates for British Columbia are the lowest of all the
provinces (the net reproduction rate fluctuates about unity), the relative

\(^1\)The gross reproduction rate is defined as the average number of girl
children that would be born to each woman who lived to reach the age of
50 years, if the fertility rates of the given year continued unchanged.
If the rate were unity women in the "reproductive period of life" would
be having just enough children to replace themselves. However, the total
population might still be increasing if birth rates exceeded death rates.
rate of population growth is highest because of in-migration from other parts of the Dominion.

6. The Outlook for the Future

Estimates of the future population of Canada indicate that by 1971 the population will not exceed 14.6 million people and that it will reach a maximum of about 15 million by the end of the century.\(^1\) This estimate is based upon certain assumptions, chief of which are the continuance of secular trends in fertility and mortality rates and the absence of migration either into or out of the country. The future trend of immigration is of course difficult to predict but some Canadian economists are inclined to question whether any further extensive immigration is desirable.\(^2\) This, in the opinion of the writer, is a difficult point of view to defend for a country which has the second lowest density of population of any country in the world, and is located between two such colossi as the United States and the Soviet Union.\(^3\) Certainly the desirability of further Canadian


\(^{3}\) The population density of Canada is 3.32 persons per square mile, exclusive of the Yukon and Northwest Territories, as compared with 507.24 for the United Kingdom, 45.05 for the United States and 2.40 for Australia. (Canada Year Book 1945, p. 98) Population density per square mile is not, of course, a satisfactory index of the capacity of a country to support population. It fails to take resources other than land, industrial capacity or even quantity of land suitable for agricultural development into account. Much of the land upon which this calculation of density is based is rock and scrub timber quite unsuited for agri-
immigration is closely tied in with the type of post-war world which we are going to have. The extent and diversity of Canada's resources would seem to offer opportunity for industrial expansion and it has yet to be proved that the addition of more people to the Canadian economy is incompatible with a rising real standard of living.

Most writers when debating the advisability of further immigration have looked to farming as the occupation of these new immigrants. Canadian immigration laws and regulations have been framed in such a way as to give a decided preference to those expressing an intention of farming. This tendency is undesirable if, as we have seen, agriculture is to occupy a progressively smaller proportion of our population and the normal movement is to be out of agriculture and into other industries.

However, if further immigration is postponed until there is assurance of a continuing high level of employment it may be well to enquire as to what effect the gradual cessation in the growth of the Canadian population will have upon the demand for foodstuffs. We have seen that, although the population increased by 30 per cent between 1920 and 1940, the numbers gainfully occupied in agriculture remained practically constant over these two decades. If we assume that the quantity of foodstuffs exported remained constant over this period, the output of the same quantity of labour inputs fed nearly a third more people and there is a good chance that it fed them better. This is, of course, consistent

cultural development under existing price and technological conditions. Nevertheless the terrific dispersion in these density figures should impress upon Canadians the need for a very exhaustive study of the case before reaching the conclusion that an increased population will retard improvements in the standards of living of Canadian people.
with common sense as rapid technological developments and the substitution of capital for labour during this period increased greatly output per man in agriculture.

If now the assumptions underlying the estimates of future population growth prove realistic and the population of Canada in 1961 is only from 15 to 20 per cent higher than in 1941 either Canadians must eat more or more must be exported if demand is to be maintained and the rate of technological development continues as it has during the past twenty years.

This analysis of population change and income elasticity of demand suggests that the factors responsible for the movement of surplus population out of agriculture are apt to become stronger, rather than weaker, in their effect as time goes on. Much of course depends upon the long run export demand for agricultural products. As the outlines of the post-war world begin to take shape there seems reason to believe that Canada should not place too much reliance upon any considerable expansion in export demand. The clear implication remains, therefore, that not only should great care be taken in framing agricultural policy to avoid placing any obstacles in the outward movement of surplus farm people but that positive measures should be adopted to facilitate such a movement.

The best possible way of facilitating the movement of surplus people out of agriculture is to maintain a high level of employment and income in the rest of the economy. This is of course the primary goal in any case and for many other reasons and is not a subject of controversy. There are some techniques which promise to assist in the movement of
people out of agriculture even if we fail to maintain a high level of employment. The most fruitful of such techniques appear to include the following:

(a) Improving the educational level of farm people. Attention should be directed not only to making available training in agricultural technology and farm management but also training in urban occupations in which young people leaving the farm might expect to find employment.

(b) Increasing the mobility of labour by disseminating information on employment opportunities and wages being paid in other industries. The Department of Labour is now providing employment service on a national basis in Canada with regional offices in the larger cities.

(c) The government may find it desirable to grant specific aids to people in agriculture whose resources are insufficient in quality or quantity to enable them to earn a decent living. Such people may literally become too poverty stricken and discouraged to move. They then require help to acquire either more capital to combine with the resources which they have, to move to a farm in a better area, or to transfer out of agriculture entirely. The Prairie Farm Rehabilitation Act set up an action agency in Canada which prior to the war did good work along these lines although it did not include, as a part of its activities, the extension of credit or other assistance to farmers to help them move out of agriculture.

H. A Suggested Explanation of the Declining Relative Position of Agriculture—the low income elasticity of the demand for food

Throughout the previous section we have emphasised two points:
(a) While the area of improved land in farms has been expanding, the number of farms and the numbers of people engaged in agriculture in Canada during the past twenty-five years have remained relatively constant. At the same time, industry has expanded so that agriculture as an industry is becoming relatively smaller in size.

(b) Since fertility rates in agriculture are higher than in the rest of the economy the maintenance of per capita income to persons on farms is dependent upon numbers engaged in agriculture being kept down. Hence the channels through which people pass out of agriculture and into other occupations must be kept open.

The question now arises as to why agriculture's relative size is shrinking. The answer appears to be that as income increases, consumers desire to spend a smaller proportion of the total for food and to increase the proportion devoted to other goods. Various writers have emphasized the importance of this factor in checking the growth of the demand for food.¹ Two methods of demonstrating this characteristic of demand have been commonly employed. The first is to examine the per capita consumption of a given food for people in different income ranges. The second is to examine the time series of national income and the proportion of it spent for food.

There are some data for Canada available on the per capita consumption of certain foods by people in different income groups. Some of these

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data are summarized in Table 13 for three of the so-called "protective foods", butter, milk and eggs. These statistics are not altogether satisfactory in that they lump together consumers from different parts of the country, whose consumption habits may be very different, into the same income group. The population from which these samples have been selected may be heterogeneous. In any case, the elasticities of demand with respect to income are all less than unity and all but one are less than 0.5. We are not concerned here with the determination of specific elasticities of demand with respect to income. It suffices to note that as the income of consumers increase the proportion which they spend on food decreases and the proportion on other goods increases.

Table 13

Weekly Consumption of Certain Foods
As Related to Per Capita Annual Income *

<table>
<thead>
<tr>
<th>Income per person (dollars)</th>
<th>Butter Weekly Elas-</th>
<th>Milk Weekly Elas-</th>
<th>Eggs Weekly Elas-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>purchases/ person</td>
<td>tivity (lbs.)</td>
<td>purchases/ person (pints)</td>
</tr>
<tr>
<td>100-199</td>
<td>.52</td>
<td>3.50</td>
<td>0.19</td>
</tr>
<tr>
<td>200-299</td>
<td>.59</td>
<td>4.44</td>
<td>0.25</td>
</tr>
<tr>
<td>300-399</td>
<td>.61</td>
<td>4.32</td>
<td>0.47</td>
</tr>
<tr>
<td>400-499</td>
<td>.70</td>
<td>4.70</td>
<td>0.40</td>
</tr>
</tbody>
</table>

*Source: Canada, Dominion Bureau of Statistics, Family Income and Expenditure in Canada, 1937-38. A report on expenditures by 667 "representative" wage earner families in Montreal (French), Toronto, Winnipeg and Vancouver. The income elasticities of physical consumption were computed as follows:

\[ \eta = \frac{q_1 - q_0}{q_0} \]

\[ \eta = \frac{I_1 - I_0}{I_0} \]
This inference derived from budget data would lead one to expect that as national income increases the percentage spent upon food would decrease. In testing this hypothesis, expenditure on food should be measured at the farm, i.e., the part of the expenditures of domestic consumers which finds its way into farmers' pockets. This may amount to from 40 to 60 per cent of the retail value of this food. The reason for taking the value of food at the farm is that consumers appear willing to buy relatively more services with their food as their income increases—that is, more expensive packaging, delivery, better appointments in retail stores and so on.

In a recent study by the Wartime Prices and Trade Board of the relationship between disposable income (income payments to individuals less income taxes) and total expenditures on food (including food sold at retail, meals in restaurants and value of food consumed by farm families out of their own production) a straight line relationship was found for the period 1930-1943. Roughly from 21 to 23% of disposable income is spent on food at retail and this study indicated that the percentage did not vary with the level of disposable income.

We would expect that as income payments increase a smaller percentage of the total would be spent for food. This trend may here be obscured by taking food expenditures at retail and the total charge for meals served in restaurants, including a higher proportion of services. Secondly,

the data for disposable income are unrevised estimates which, there is good reason to believe, are biased upwards during the depression years of the early thirties. Thirdly, the volume of goods and services other than food which was available to consumers during the war years was probably more restricted than the supply of food. Such a differential restriction in supply of other consumers' goods with an effective system of price control would prevent this relative shift of expenditures to other goods to show itself. Data presented by Schultz on the relationship between United States national income and expenditure on farm products for the period 1870-1939 indicate a definite downward trend in relative expenditures on food.¹

¹Schultz, op. cit., pp. 63 and 64.
VI. STABILIZATION OF SUPPLY

The performance of the agricultural industry in Canada may be judged on the basis of two criteria. The first of these is whether agriculture is employing too many or too few resources and whether the industry is making the best possible use of those resources which it is employing. This we shall refer to as the resource problem. The second criterion is whether the people engaged in agriculture are receiving adequate incomes as judged by accepted norms of social welfare and as compared with people in other sectors of the economy. This is the income problem.

We are concerned with the examination and proposal of specific techniques which are intended to improve the use of resources and the size and distribution of incomes. Chapters VI and VII are accordingly devoted to a discussion of means which might be employed to improve the use of resources within agriculture; Chapter VIII represents an effort to determine how, in the event of depression, a minimum level of income may be assured to people in agriculture without interfering with the best use of resources.

In an enterprise economy the distribution of incomes is closely related to the distribution of the ownership of resources, both real and personal. We have fairly definite criteria by which to evaluate

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1T. W. Schults was one of the first to present an analysis of the agricultural industry in these terms as pointed out above, p. 8. D. Gale Johnson has attempted to evaluate and apply these two criteria to American agriculture in his Contribution of Price Policy to the Income and Resource Problems in Agriculture, Journal of Farm Economics, 26:631-644. 1944.
the distribution of resources in order to best satisfy the desires of consumers as expressed in the market place. The standards by which the distribution of incomes may be judged are less definite and less widely accepted.

Late in the eighteenth century Adam Smith contended that each individual could best contribute to the general welfare by maximizing his own. With some qualifications that position is still accepted by economists. The principal of these qualifications is that resource owners have an accurate knowledge of alternatives and that the resources themselves be perfectly mobile. Given these premises, total product is maximized when the marginal value product of a factor is equal both to its price and to its opportunity cost. Under these conditions and with a given distribution of income the satisfaction of consumers could not be improved by shifting resources to other uses.¹

In actual practice resources do not possess perfect mobility and resource owners do not have an accurate knowledge of the prices which their resources may command in alternative uses. One of the most striking examples of the absence of this latter condition is the uncertainty which prevails among farmers as to the prices which the various products which they might produce will bring them when ready for market. This uncertainty as to future prices causes producers to fall back upon the convenient,

¹Figou specifies three additional conditions which must prevail before this statement obtains. They are:
(a) The firm must pay market prices for all resources which it employs.
(b) Consumers must pay market prices for all scarce goods which they consume.
(c) The operations of any one firm must not cause a disservice to other firms or consumers.
but usually erroneous, assumption that the prices which prevail when
they formulate their production plans will persist through to the time
at which they market their product. Present prices have proved a poor
guide to future prices when interpreted in this way and have resulted
in marked cyclical fluctuations in output which represent an inefficient
use of resources.

Johnson has made the point that this uncertainty as to future prices
induces farmers to keep their resources as flexible as possible.¹ This
attempt to secure flexibility results in the operator combining too
much labour with too little capital since the quantity of labour does
not represent a fixed commitment. Such a practice encourages capital
rationing or the failure to add capital up to the point where the margin-
inal product of an additional increment is no greater than the interest
on such an increment. At the same time labour which might yield a
larger product elsewhere is retained in agriculture.²

The next two chapters are therefore devoted to an examination of
administrative techniques which promise to permit greater price certainty
to Canadian farmers and thereby improve the use of resources both within

¹D. Gale Johnson. The Contribution of Price Policy to the Income
and Resource Problems in Agriculture. Jour. of Farm Econ. 26: 636. 1944.

²This argument assumes a high level of employment. If unemployment
exists in both the agricultural and non-agricultural sectors of the
economy under free competition the marginal product of labour is presumably
zero and nothing is gained by transferring men from one industry to another.
In practice employment outside of agriculture at least stops when the
value product of an additional man drops below a certain point since
minimum wages are fixed by either trade unions or legislation. In Canada,
during the middle thirties, farm labourers not only worked for their
board but the Dominion government paid the employer some small sum such
as $5 per month to hire a man.
the firm and within the industry. An essential part of any increase in price certainty is the stabilization of supply of those agricultural commodities which are factors of production used in other agricultural enterprises. Stabilization of output is thus a means to an end—greater price certainty. By making possible a more regular supply of those farm products which become factors of production used in turn to produce other farm products, a greater degree of price certainty to enterprisers using these products is made possible. A large part of the uncertainty facing the livestock producer stems from lack of accurate knowledge of the price which he will have to pay for an important unit of input, feed grains. If the supply of feed grains coming on to the market can be stabilized, a considerable part of the price variation arising from unforeseen fluctuations in output will have been eliminated, thereby permitting future grain prices to be more accurately anticipated. Throughout these two chapters we have assumed a high level of employment and have concerned ourselves with the distribution of resources within agriculture under this assumption. In Chapter VIII our task will be to examine the income problem in agriculture with this assumption removed.

A. Rationale of a Stabilization Program

We propose first to attack the problem of achieving greater stability for agriculture from the supply side. This model resembles that of classical theory\(^1\) in that recurrent fluctuations in demand resulting from a

\(^1\)With the notable exception of the writings of Malthus.
variable level of business activity with resultant oscillations in the volume of consumer purchasing power are assumed absent. Given constant demand what type of price policy would best contribute to the stabilisation of farmers' income?

Variable weather conditions lead to marked fluctuations in the output of particular commodities. In Western Canada there is a high correlation between the yields of oats, barley and wheat and also, although no statistical data are available, between the yields of grain and grass. These fluctuations in the output of feedstuffs in turn contribute to fluctuations in the output of livestock. Fluctuations in grain supplies affect the price of grains and hence the livestock-feed ratios. There is typically a lag between changes in the supply and price of grain and in the output of livestock. \(^1\) Varying periods of time are required for changes in livestock-feed ratios to be reflected in changes in livestock output, depending upon the production period for livestock. These fluctuations in livestock production result in a less than full use of fixed factors and hence in higher real costs of production. Can price-cost conditions be stabilized, or, lacking stabilization, be made known to the farmer in advance in such a way as to both increase output and lower costs?

We propose to build up a price program for agriculture by successive steps. The first step is to attempt to provide an economic framework within which agricultural output may be regularized and a maximum output

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per unit of input achieved. It is assumed that demand is relatively constant and that recurrent fluctuations do not occur. The only shifts in demand would be those of a structural nature resulting from changes in tastes and the substitution of products. Our second task will be to devise adequate modifications to this suggested program to permit it to constitute a second line of defence against the periodic impact of those recurrent fluctuations in demand which characterize the business cycle.

Before proceeding with the details of a specific program let us examine some at least of the "rules of the game" which we have used as premises in attempting to formulate a workable plan. These premises are:1

1. Production control

The plan should not involve production control. If real income is to be increased output must not be restricted in an effort to raise prices. This is not to deny the desirability of farmers foregoing some output

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1 These objectives may be compared with the four questions which persons testifying before the Colmer Committee on Postwar Economic Policy and Planning, House Report No. 2728, 79th Congress, 2nd session, p. 1, were asked. These were:

1. How may farm people achieve a high level of economic productivity and thus earn for themselves a high standard of living over the years?
2. How may the very considerable instability in income from farming be reduced?
3. How may American people attain higher levels of nutrition and consumption?
4. How may agricultural policy and foreign trade policy be integrated and reconciled into a consistent whole?
in favour of increased leisure. Restriction of output is undesirable if we are to better our standard of living and, judging by American experience under the AAA, difficult to achieve. In order to make the best use of resources farmers must be permitted to equate the marginal value product of a unit of input with its price. The rationing of inputs prevents this optimum adjustment. The rationing of outputs, which is the prime purpose of marketing quotas, prevents the entrepreneur from equating the marginal cost of his product with its price.

2. **Consumer choice**

The distortion of resource use must be minimized. Price policy must be such as to facilitate structural (non-recurrent) shifts in demand among particular food products. If consumers decide they wish to buy (say) more beef and less pork the relative prices of these two meats must convey this change in demand back to the producers of cattle and hogs.

3. **Technological improvements**

The adoption of technological improvements should be facilitated. Society should always be anxious to encourage the adoption of techniques which will permit greater output per unit of input. Making two blades of grass grow where only one grew before is the stuff of which economic progress is made.

4. **Rural-urban movement of population**

The incentives which impel surplus population to move out of agri-
culture and to find employment in other industries must not be removed. We have observed that in the past the greatest movement out of agriculture occurs when farm income is highest. The availability of non-farm jobs appears to have been the determining factor. Nevertheless there is no reason to suppose that substantial improvement in the rate of return to those employed in agriculture relatively to that received by workers in other occupations will not check the off-farm movement of people. If the returns to labour in agriculture are equal to returns elsewhere, an optimum allocation of labour as between agriculture and the rest of the economy has been achieved—unless the returns to firms in agriculture or other industry have been bolstered by subsidization or restriction of output. So long as the returns to people in agriculture are lower than those which can be obtained elsewhere, further movement of resources is desirable. Such a resource movement may be either of capital into agriculture, of labour out, or both.

5. **Price uncertainty**

We wish to eliminate price uncertainty as far as possible. Farmers are not making the best use of their resources when they expand their livestock enterprises on the expectation that present high prices will continue, only to find when they are ready to market this livestock that the price is abnormally low. The use of forward prices promises to reduce total risk and to shift the bearing of a substantial part of what remains to the government. The elimination of uncertainty will make possible a
greater output per unit of input and will help even out fluctuations in production.

The objective at which price policy should be aimed is to establish conditions which will permit farmers to increase their economic productivity and hence better their own living conditions while contributing to the welfare of the nation as a whole. It is not desired to subsidise farmers either by artificially raising the price of their products through government monopolies dealing in farm products, or by transferring income to them from other citizens of the economy. It is to be hoped that agriculture in Canada can be kept on a self-sustaining basis and that it can be made more productive by eliminating much of the uncertainty which has hampered farmers in the past.

Reliance is placed upon the maintenance of competition as the only device with which we have had experience in allocating resources to their most productive uses and in guiding farmers in producing those products which consumers desire most. An essential part of the program which we propose is, therefore, the maintenance of a system of free market prices which will permit farm products to flow into both domestic and export markets. Around this core of free market prices we believe that certain devices can be built which will permit of a more regular flow of farm products and a better utilisation of agricultural resources.

B. A Stabilisation Program for Wheat

Wheat occupies a unique position in the Canadian economy. It is
the staple crop around which the development of the Canadian Prairies took place. The production and export of wheat paid for the capital imports which were essential to the opening up of a new area. It is still the most important grain in the cropping system of the Canadian section of the Great Plains. As such, wheat merits particular attention in any program aimed at fostering greater stability in the agricultural industry.

1. Wheat as a food and feed grain

Wheat is both a food and a feed grain. Canada's hard red spring wheat, sold in world markets under the trade name of "Manitoba", is a "strong" wheat suitable for blending with the soft wheats of Europe.\(^1\) The reputation of Canadian wheat has been established and it is to the advantage of Canadian farmers that their product should be available to importers in fairly regular quantities each year. The stabilization of supplies available for export should therefore help to enlarge and ensure the export demand for Canadian wheat.

In addition to the export of wheat for food, there is no reason why wheat should not be permitted to flow into feed channels if the price of wheat relative to that of the feed grains makes the feeding of wheat economical. There are large areas in the Prairie Provinces which will

\(^1\)Hard winter wheats from the United States are lower in protein content than the Manitobas and therefore less suitable for blending. If milled by themselves they closely fit the European standards of quality but European millers in "normal" times are prepared to pay a premium for hard wheats which can be blended with the soft native wheats. Argentine wheats are fillers; they neither add to nor detract from the quality of a blend. The Australian wheats, mostly white, are "weak".
produce more feed units per acre when planted to wheat than to any other crop. Farmers in Ontario too have found that wheat will, in many areas, out-produce barley; they have been feeding two-thirds of their wheat crop to livestock even though the price of a pound of wheat has, during the war, been about 2/3 cents higher than that of a pound of barley. Any price policy adopted should permit the growing of wheat on such lands and facilitate its use as a feed grain. The final decision as to whether wheat should go to feed animals other than humans must be left to the market.

a. Stabilisation of exports. Canada has, even in the worst years of drought, produced more than enough wheat to meet her needs for food and seed. The demand for wheat for food is highly inelastic. Canadians annually eat about 4½ bushels of wheat per capita, year in and year out. Requirements of wheat for seed vary, of course, with acreage seeded but the range of variation does not exceed 15 million bushels and is usually much less. Exports and the use of wheat for livestock feed make up the difference between wheat used for food and seed and total disappearance.¹

Prior to the great expansion in livestock numbers which accompanied the war, from 25 to 40 million bushels of wheat were fed to livestock and poultry. Most of this wheat was grown in the Prairie Provinces and was of poor quality, grading No. 4 Northern or lower. Farmers in Eastern Canada produce from 20 to 25 million bushels of soft winter wheat and

¹Excluding small quantities used for making alcohol.
feed all but about 5 million bushels on the farms where it is grown. This 5 million bushels which is marketed finds its way into the production of pastry flours.

During the ten years preceding 1939 the domestic disappearance of wheat ranged from 97 to 150 million bushels and this period included the years of lowest and highest output on record. During this same period exports varied from 96 to 408 million bushels. These data are summarized in Table 14.

The output of wheat, in summary, is highly variable. The domestic use of wheat for food and seed is very stable; quantities used for feed depend upon the price of wheat relatively to the prices of coarse grains together with the total demand for all feed concentrates. Exports are the most variable and normally absorb two-thirds of the total crop. Changes in stocks tend to even out total disappearance to some extent from one year to the next.

Since the total output of wheat for the world as a whole tends to be relatively stable there may be good reason to permit exports to vary from year to year. If total wheat production is relatively constant countries producing a below average crop might be expected to make up their requirements by imports from countries with an above average crop. Wheat is not, however, a homogeneous commodity. If millers require hard spring wheat for blending purposes they cannot readily substitute a soft wheat in its place. If production in Canada is reduced by unfavourable weather and Canadian stocks are not adequate to make up the difference, overseas customers must perforce turn to other sources of
### Table 14

Production, Exports and Domestic Disappearance of Wheat in Canada 1921-1945

(\textit{million bushels})

<table>
<thead>
<tr>
<th>Crop Year Beginning August 1</th>
<th>Total Production</th>
<th>Gross Disappearance</th>
<th>Gross Exports</th>
<th>Domestic Disappearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921</td>
<td>300.9</td>
<td>292.9</td>
<td>185.8</td>
<td>107.1</td>
</tr>
<tr>
<td>1922</td>
<td>399.8</td>
<td>409.7</td>
<td>279.4</td>
<td>130.3</td>
</tr>
<tr>
<td>1923</td>
<td>474.2</td>
<td>438.3</td>
<td>346.5</td>
<td>91.8</td>
</tr>
<tr>
<td>1924</td>
<td>262.1</td>
<td>279.5</td>
<td>192.7</td>
<td>86.8</td>
</tr>
<tr>
<td>1925</td>
<td>395.5</td>
<td>386.1</td>
<td>324.6</td>
<td>61.5</td>
</tr>
<tr>
<td>1926</td>
<td>407.1</td>
<td>391.6</td>
<td>292.9</td>
<td>98.7</td>
</tr>
<tr>
<td>1927</td>
<td>279.7</td>
<td>444.1</td>
<td>333.0</td>
<td>111.1</td>
</tr>
<tr>
<td>1928</td>
<td>566.7</td>
<td>530.7</td>
<td>407.6</td>
<td>123.1</td>
</tr>
<tr>
<td>1929</td>
<td>304.5</td>
<td>305.1</td>
<td>186.3</td>
<td>118.8</td>
</tr>
<tr>
<td>1930</td>
<td>420.7</td>
<td>408.0</td>
<td>258.7</td>
<td>149.3</td>
</tr>
<tr>
<td>1931</td>
<td>321.3</td>
<td>324.0</td>
<td>207.0</td>
<td>117.0</td>
</tr>
<tr>
<td>1932</td>
<td>443.1</td>
<td>361.3</td>
<td>264.3</td>
<td>97.0</td>
</tr>
<tr>
<td>1933</td>
<td>281.9</td>
<td>296.7</td>
<td>194.8</td>
<td>101.9</td>
</tr>
<tr>
<td>1934</td>
<td>275.9</td>
<td>264.9</td>
<td>165.8</td>
<td>99.1</td>
</tr>
<tr>
<td>1935</td>
<td>281.9</td>
<td>365.4</td>
<td>254.4</td>
<td>114.0</td>
</tr>
<tr>
<td>1936</td>
<td>219.2</td>
<td>309.7</td>
<td>195.2</td>
<td>114.6</td>
</tr>
<tr>
<td>1937</td>
<td>180.2</td>
<td>192.6</td>
<td>95.6</td>
<td>97.0</td>
</tr>
<tr>
<td>1938</td>
<td>360.0</td>
<td>282.3</td>
<td>160.0</td>
<td>122.3</td>
</tr>
<tr>
<td>1939</td>
<td>520.6</td>
<td>322.3</td>
<td>192.7</td>
<td>129.6</td>
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<tr>
<td>1940</td>
<td>540.2</td>
<td>360.6</td>
<td>231.2</td>
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<tr>
<td>1941</td>
<td>314.8</td>
<td>371.1</td>
<td>225.8</td>
<td>165.3</td>
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<tr>
<td>1942</td>
<td>556.7</td>
<td>385.9</td>
<td>214.7</td>
<td>171.2</td>
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<tr>
<td>1943</td>
<td>284.5</td>
<td>522.6</td>
<td>343.8</td>
<td>178.8</td>
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<tr>
<td>1944</td>
<td>416.6</td>
<td>515.0</td>
<td>342.9</td>
<td>172.1</td>
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<tr>
<td>1945</td>
<td>305.9</td>
<td>494.1</td>
<td>337.5</td>
<td>156.6</td>
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</table>

supply. There is also some irregularity in the total production of the "Big Four" producers; Canada, the United States, Argentina and Australia. During the past ten years their combined output has varied from 1.2 to 1.9 billion bushels. These data are summarised in Table 15.

On the other hand Canada has in her hard spring wheat a product which is fairly well differentiated in world markets. If she is to supply her regular customers year in and year out with their requirements she might do well to stabilise the supplies which are available for export. Such a policy could well expand and guarantee her overseas markets for hard spring wheat.

Regularisation of the supplies of wheat available for feed in the domestic market could also contribute to the expansion of this outlet. Livestock feeders will tend to use those grains which are regularly available to them and will feed more wheat if they can get it at all times than if it is only available say two years out of three even though the same volume is available over a longer period of time.

b. Specialisation versus diversification in the Great Plains Region.
The necessity of enlarging and stabilising the markets for Canadian wheat is of particular importance in view of the large areas of arable land in the Prairie Provinces which are better suited to the production of wheat than to any other crop. During the thirties the popular solution offered for the plight of the wheat farmer was diversification. It was suggested that, if the wheat farmer would put eggs in baskets other than his grain bins, his income would be more stable. Variations in weather do not have as severe an impact upon the output of livestock and livestock products
<table>
<thead>
<tr>
<th>Crop Year</th>
<th>United States</th>
<th>Canada</th>
<th>Argentina</th>
<th>Australia</th>
<th>Total of four countries</th>
<th>World Excluding China</th>
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<td>1921</td>
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<td>301</td>
<td>191</td>
<td>129</td>
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<td>3,390</td>
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<td>400</td>
<td>196</td>
<td>109</td>
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<td>3,607</td>
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<td>125</td>
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<td>262</td>
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<td>165</td>
<td>1,460</td>
<td>3,623</td>
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<tr>
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<td>191</td>
<td>115</td>
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<td>161</td>
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<td>110</td>
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<td>53</td>
<td>1,699</td>
<td>3,797&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> Source: Agricultural Statistics, United States Department of Agriculture, Government Printing Office, Washington, D. C. Harvests of the Northern Hemisphere are combined with those of the Southern which immediately follow.

<sup>b</sup> Exclusive of the Soviet Union.
as upon grain yields. Moreover, it is argued, if a farmer is producing
several products he is less severely affected by low prices for any one
of them. This latter argument implies something less than perfect corre-
lation among movements in the prices of those products which he might be
expected to market.

The merits of a program of greater diversification for farmers
in the brown and dark brown soil belts of the Prairie Provinces may
have been over-emphasised. These soils, where arable, appear best suited
to the production of cereals and particularly wheat. Recent advances
in technology are making possible important reductions in the cost
of growing grain. The comparatively low yields of forage crops, the
difficulty of securing "a catch" in the first place, together with a
lack of natural shelter tend to discourage the production of livestock
on farms in these areas. Since 1943 farmers have been reducing the
size of their hog enterprises, partly because of less favourable hog-
feed price ratios, partly because of the shortage and higher prices for
farm labour together with their own unwillingness to feed pigs as their
net incomes increased.

\(^1\)Shallow cultivation, to a depth of about 4 inches, with 20 foot
"one-ways" drawn by high speed tractors promises to substantially
reduce costs of cultivation. Such methods are more easily used on
larger farms.

\(^2\)On June 1, 1946, there were 757,000 hogs on Saskatchewan as compared
with 1,755,000 at June 1, 1943.
c. **Wheat for feed competes with oats and barley.** The two principal feed grains raised and fed in Canada are oats and barley. The combined acreage devoted to these two crops has, since 1942, been about equal to that seeded to wheat. These three grains are the principal field crops in Western Canada. Less than one million acres of wheat and about a half million acres of barley are grown outside the Prairie Provinces as compared with 22 million acres of wheat and 7 million acres of barley seeded in those three provinces. Roughly a third of the 64 million acres cultivated in the three Prairie Provinces is devoted to coarse grains, a third to wheat and a third to summerfallow. Relatively insignificant acreages are devoted to tame hay, legumes, roots and oilseed crops.

Oats is more important in the cropping program of Eastern Canada with a third of a national total of 15 million acres being planted there. Two thirds of the 18 million acres in field crops in Eastern Canada are in hay, root crops and mixed grain with over one half in hay.¹ Oats and hay are the principal feed crops grown in the east. Nearly all of the wheat grown outside the Prairies is fed on the farms where it is grown.

The utilization of these three principal grains differs significantly. Roughly two thirds of the wheat crop is exported as compared with 5 per cent of the oats and 10 per cent of the barley. An insignificant proportion of the coarse grains are used for food in Canada but the domestic consumption of wheat for food has since 1940 been equalled or

¹These acreage data are of course only approximate as acreage varies somewhat with relative prices.
exceeded by the quantities fed to livestock. Prior to the war an "average" crop of 350 million bushels was typically disposed of as follows: food 50 million, seed 30 million, feed 30 million and the remaining 240 million bushels exported.¹

It is worthy of note that there is an important movement of feed grains and wheat for feed from surplus to deficit areas within Canada. This occurs locally largely as a result of crop failure in any particular year and as between regions. Feeders in Eastern Canada and British Columbia draw heavily upon the Prairie Provinces for supplies of concentrates and millfeeds. This movement has been subsidized during the war to make feedstuffs available at lower prices and thereby facilitate the expansion of livestock output in these feed deficit areas. A typical movement under freight assistance for a wartime crop year has been 25 million bushels of wheat, 45 million bushels of oats and 35 million bushels of barley.

¹The multiple price policy for wheat which has been in effect in Canada since the closing of the Grain Exchange in September 1943 is intended to encourage the use of wheat for feed. Since November 15, 1943, Western wheat, to be used for feed for livestock or poultry, has been subject to a drawback of 25 cents per bushel below the Canadian Wheat Board's domestic sale price of $1.25 per bushel for No.1 Northern, basis in store Fort William. This made No.4 Northern (higher grades were excluded from the plan) available to the Western feeder at a net price of 90 cents a bushel as compared with 51 1/2 cents for oats and 64 3/4 cents for barley, basis Fort William. The price of feed grains to the feeder in Eastern Canada and British Columbia has been subsidized by the government absorbing the freight from the head of the Lakes and Alberta respectively. Under the stimulus of these two subsidies, together with the enlarged demand for livestock feeds, the quantity of wheat fed exceeded 90 million bushels in 1943-44.
These proximate statistics of grain production and utilization in Canada have been quoted, not for the purpose of giving a detailed analysis of this important sector of agricultural production, but in an effort to sketch in the broad background against which any price policy for grains must function.

2. A storage program for wheat

Fluctuations in the price of Canadian grains are attributable to the following factors:

(a) Changes in supply

i. Short run fluctuations resulting from variations in yield caused by unpredictable changes in weather.

ii. Long run shifts in supply caused by changes in cost of production resulting from technological developments.

(b) Changes in demand

i. Structural shifts in demand induced by technological changes, such as the substitution of tractor for horse power.

ii. Changes in the export demand for that proportion of the Canadian grain crop normally exported.

iii. Blanket shifts in demand caused by the cyclical contraction of consumer purchasing power which permit the volume of livestock placed on the market to be moved into consumption only at lower prices. Lower livestock prices immediately reflect themselves in lower grain prices.
A storage program for a single country is not well suited to the purpose of offsetting fluctuations in demand over time, thereby narrowing variations in price. (Nor is it intended to eliminate trends in supply induced by secular economic forces.) In the first place the ups and downs of the business cycle are extremely difficult to predict. To accumulate supplies over the "trough period" to be placed on the market when demand has improved may necessitate the accumulation of very large supplies. Storage proves costly in terms of waste, interest and other carrying charges. Moreover, the chances of price recovery for this particular product may be lessened by the existence of large stocks which may be placed upon the market. A more fundamental objection to efforts to hold over durable farm products from a period when prices are low and to sell them when prices are high is the adverse effect which this practice has upon consumers. A national storage program is also likely to cut off or greatly reduce exports during a period of depression. It may, in addition, induce a marked shift from the production of perishables to those durable commodities whose price is being supported by storage.

For details of an American experiment along these lines see: Geoffrey S. Shepherd. Agricultural Price Control. Ames, Iowa: Iowa State College Press, 1945. Chapters 3 and 4. The Federal Farm Board foundered in an effort to use storage stocks to even out fluctuations in demand. It is generally agreed that a similar fate might have met the Commodity Credit Corporation had it not been rescued by the outbreak of war which provided a market for the large stocks of corn, cotton and wheat which it had built up. The cost of carrying large stocks for which there is no market at an acceptable price inevitably pushes the lending agency into the advocacy of production control.
operations. As an anti-cyclical policy fiscal-monetary devices are better adapted than a storage program.¹

Frequently the prices of staple agricultural products are low, not because of excess supply, but because of reduced purchasing power. If consumers are to continue to consume as much of these products as before, food prices, at retail, must decline more than in proportion to the decline in consumers' disposable income. This is because industry restricts output when prices fall and hence prices of industrial products decline less than those of agricultural products. From a social point of view the accumulation of stocks, because the price is low, is undesirable since it restricts consumption, although it may minimize the losses sustained by individual firms. Agriculture cannot maximize its contribution to the general welfare if it attempts to restrict production or to accumulate stockpiles of durable farm products during periods of depression. The storage of durable farm products then does not offer an acceptable solution to the problem of stabilizing demand against recurrent fluctuations. This latter is a large order in itself and must be left to other techniques. A storage program can, however, be adapted

¹The use of a storage program to offset fluctuations in demand may be better suited to storage of durable commodities on an international than on a national basis. Some of the difficulties attaching to storage on a national basis would still apply to international buffer stocks. One advantage which the latter proposal offers is that it would not subsidize producers over the business cycle. What producers gained during depression in the form of an increased price they would lose through lower prices during periods of prosperity.
to permit structural changes in demand being reflected in price. The most suitable use of the storage technique on the national level remains that of stabilising output against fluctuations in yield.\(^1\) Our ultimate purpose in suggesting the use of a storage program to iron out un-controllable fluctuations in output is to reduce price fluctuations.

The livestock producer is confronted by two important unknowns,—first, the price of feed which constitutes his largest component of cost, and second, the price of his finished product when it is ready for market. If the supplies of feed grains coming onto the market can be stabilised or partially stabilised one important factor contributing to fluctuations in price will have been reduced. The problem of evening out fluctuations in the demand for feed grains, which is the second factor causing price fluctuations, will be dealt with later.

The variations in yield which characterise wheat production in Western Canada are so great that any program which would completely stabilise the quantity offered for sale each would cost more than the value of the benefits which it would offer. If an "ever-normal granary" program had been instituted in 1921 with a storage agency

\(^1\)The theory of storage can be evaluated from different points of view. Johnson, in The Theory of Forward Prices for Agricultural Products, p. 231, suggested five such viewpoints:

(1) Maximisation of the "advantage" to the economy as a whole
(2) Maximisation of producers' income
(3) Maximisation of consumers' surplus
(4) Stabilisation of producers' income
(5) Stabilisation of prices

Johnson concludes that stabilisation of prices leads to the same result as the maximisation of total utility and that the first and fifth objectives of storage are therefore equivalent.
established to sell any deficit below an "average-weather crop"\(^1\) and to buy any excess in production over an average-weather crop, stocks held by the agency would have been zero by July 31, 1932, and would have remained so until July 31, 1939.\(^2\) The fact that stocks were depleted almost at the beginning of the period of poor yields means, of course, that stabilization of supplies at or near an average-weather crop would not have been possible during this period. Stocks on hand at July 31, 1928, would have had to be 680 million bushels to permit an average-weather crop to be placed on the market each year from 1929 through 1937. Quite clearly stocks of this size are excessive.\(^3\) On the other hand it may be

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\(^1\)The writer is indebted to Professor Geoffrey Shepherd for this concept. By it is meant average yield multiplied by the acreage seeded. A five year moving-average is used in order to reflect improvements in yield resulting from improved varieties of grain, better cultural practices and more effective control of pests and disease.

\(^2\)Stocks would have been accumulated by buying the excess over an average weather crop, but not selling the deficit of a poor crop below average until minimum stocks of 80 million bushels had been accumulated. The good crops of 1922 and 1923 would have permitted the accumulation of this minimum stockpile.

\(^3\)The quite modest stocks, by present standards, of 127 million bushels which were on hand at July 31, 1930, proved a source of embarrassment to the wheat Pools and the Dominion Government during the early thirties. The financial solvency of the Pools was threatened since they had made an initial payment on the 1928, 1929 and the 1930 crops which proved to be higher than the market value of this wheat after the market collapsed in the fall of 1929. The loss of export markets caused stocks to increase to a peak of 214 million bushels at the end of the 1934-35 crop year. Under such conditions an ever-normal granary designed to even out fluctuations in supply would have pushed the price of wheat to even lower levels than it did reach. After the appointment of Mr. J. I. McFarland as manager of the Central Selling Agency in 1930 an effort was made to raise prices by "holding unusually large quantities of grain out of the cash market for long periods of time, and adding to the Central Selling Agency's cash wheat by the buying of futures". (Report of the Royal Grain Inquiry Commission, 1938, p. 36). This policy was pursued from
many years before another ten year period will occur during which average yields will be below the long time average in 8 of those 10 years as was the case from 1929-1938. We should not for this reason attempt to formulate a storage program which will stabilize market supplies of grain over such a period. The marginal cost of such a program would exceed the marginal gain to be derived from it.

Table 16 includes the statistical details of the operation of a proposed storage program for wheat over the period 1921-1945. The object of the plan is to stabilize the total quantity of wheat available for domestic consumption or export each crop year. The plan is to operate independently of a forward price system for wheat and is intended to even out uncontrollable fluctuations in yield resulting from variations in weather. The storage agency is instructed to buy or sell 60 per cent

1931 to 1935 at which time the Canadian Wheat Board was set up. Total available supplies of wheat in Canada in all positions reached a peak of 981 million bushels during the crop year 1942-43. Three near-record crops in four years together with restricted export outlets were responsible for this unprecedented stockpile.

1A storage program similar to this was proposed by W. H. Nicholls in his prize-winning paper--A Price Policy for Agriculture Consistent with Economic Progress that Will Promote Adequate and More Stable Income from Farming. Journal of Farm Economics, 27: 752-6. 1945.

2The specific percentage of the difference between the actual and an average-weather crop to be purchased or sold by the storage agency was arrived at by a process of trial and error. The objective is to place as near an average-weather crop as possible upon the market each year without necessitating the holding of excessive stockpiles. The selection of a figure of 60 per cent represents a compromise between these two conflicting ends.
Table 16

Effect of a Proposed Storage Program for Wheat on Disappearance and Crop Tear

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Acreage</th>
<th>Average Yield per Seeded Acre</th>
<th>5-year Moving Average Yield per Acre</th>
<th>Production</th>
<th>Storage Agency^b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(000 acres)</td>
<td>(bushels)</td>
<td>(bushels)</td>
<td>(million bushels)</td>
<td>(million bushels)</td>
</tr>
<tr>
<td>1921</td>
<td>23,261</td>
<td>12.9</td>
<td>13.0</td>
<td>391</td>
<td>(0)</td>
</tr>
<tr>
<td>1922</td>
<td>22,423</td>
<td>17.8</td>
<td>13.4</td>
<td>400</td>
<td>59</td>
</tr>
<tr>
<td>1923</td>
<td>21,886</td>
<td>21.7</td>
<td>15.6</td>
<td>474</td>
<td>80</td>
</tr>
<tr>
<td>1924</td>
<td>22,056</td>
<td>11.9</td>
<td>15.7</td>
<td>262</td>
<td>50</td>
</tr>
<tr>
<td>1925</td>
<td>20,790</td>
<td>19.0</td>
<td>16.6</td>
<td>395</td>
<td>30</td>
</tr>
<tr>
<td>1926</td>
<td>22,896</td>
<td>17.8</td>
<td>17.6</td>
<td>407</td>
<td>3</td>
</tr>
<tr>
<td>1927</td>
<td>22,460</td>
<td>21.4</td>
<td>18.4</td>
<td>480</td>
<td>40</td>
</tr>
<tr>
<td>1928</td>
<td>24,119</td>
<td>23.5</td>
<td>18.7</td>
<td>567</td>
<td>70</td>
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<tr>
<td>1929</td>
<td>25,255</td>
<td>12.1</td>
<td>18.8</td>
<td>305</td>
<td>102</td>
</tr>
<tr>
<td>1930</td>
<td>24,898</td>
<td>16.9</td>
<td>18.3</td>
<td>421</td>
<td>21</td>
</tr>
<tr>
<td>1931</td>
<td>26,355</td>
<td>12.2</td>
<td>17.2</td>
<td>321</td>
<td>(43)</td>
</tr>
<tr>
<td>1932</td>
<td>27,182</td>
<td>16.3</td>
<td>16.2</td>
<td>443</td>
<td>2</td>
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<tr>
<td>1933</td>
<td>25,991</td>
<td>10.8</td>
<td>13.7</td>
<td>282</td>
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</tr>
<tr>
<td>1934</td>
<td>23,985</td>
<td>11.5</td>
<td>13.6</td>
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</tr>
<tr>
<td>1935</td>
<td>24,116</td>
<td>11.7</td>
<td>12.5</td>
<td>282</td>
<td>(0)</td>
</tr>
<tr>
<td>1936</td>
<td>25,605</td>
<td>8.6</td>
<td>12.3</td>
<td>219</td>
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</tr>
<tr>
<td>1937</td>
<td>25,570</td>
<td>7.0</td>
<td>11.2</td>
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</tr>
<tr>
<td>1938</td>
<td>25,930</td>
<td>13.9</td>
<td>11.8</td>
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</tr>
<tr>
<td>1939</td>
<td>26,756</td>
<td>19.5</td>
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<td>98</td>
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<tr>
<td>1940</td>
<td>28,726</td>
<td>18.8</td>
<td>14.8</td>
<td>540</td>
<td>69</td>
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<tr>
<td>1941</td>
<td>21,882</td>
<td>14.4</td>
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<td>315</td>
<td>14</td>
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<tr>
<td>1942</td>
<td>21,596</td>
<td>25.8</td>
<td>18.5</td>
<td>557</td>
<td>(67)</td>
</tr>
<tr>
<td>1943</td>
<td>16,850</td>
<td>16.9</td>
<td>19.1</td>
<td>284</td>
<td>22</td>
</tr>
<tr>
<td>1944</td>
<td>23,284</td>
<td>17.9</td>
<td>18.8</td>
<td>417</td>
<td>13</td>
</tr>
<tr>
<td>1945</td>
<td>23,414</td>
<td>13.1</td>
<td>17.6</td>
<td>306</td>
<td>63</td>
</tr>
</tbody>
</table>

^a In calculating this moving average yield, 11 bushels per acre is substituted for any yield.

^b The storage agency is directed to buy or sell 60 per cent of the difference between the calculated and the actual yield, except that the carryover may not be less than 80 million bushels or exceed 300 million bushels, or sales which were restricted because of limitations on size of carryover.
Table 16
Program for Wheat on Disappearance and Carryover, 1921–45

<table>
<thead>
<tr>
<th>Production:</th>
<th>Storage Agency</th>
<th>Stocks</th>
<th>Disappearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buys</td>
<td>Sells</td>
<td>Actual</td>
<td>Proposed</td>
</tr>
<tr>
<td>(million bushels)</td>
<td>(million bushels)</td>
<td>(million bushels)</td>
<td>(million bushels)</td>
</tr>
<tr>
<td>301</td>
<td>(0)</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>400</td>
<td>59</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>474</td>
<td>80</td>
<td>12</td>
<td>73</td>
</tr>
<tr>
<td>395</td>
<td>30</td>
<td>48</td>
<td>153</td>
</tr>
<tr>
<td>395</td>
<td>30</td>
<td>31</td>
<td>103</td>
</tr>
<tr>
<td>407</td>
<td>3</td>
<td>40</td>
<td>133</td>
</tr>
<tr>
<td>430</td>
<td>40</td>
<td>56</td>
<td>136</td>
</tr>
<tr>
<td>567</td>
<td>70</td>
<td>91</td>
<td>176</td>
</tr>
<tr>
<td>305</td>
<td>102</td>
<td>127</td>
<td>246</td>
</tr>
<tr>
<td>421</td>
<td>21</td>
<td>127</td>
<td>144</td>
</tr>
<tr>
<td>321</td>
<td>(43)</td>
<td>139</td>
<td>123</td>
</tr>
<tr>
<td>443</td>
<td>2</td>
<td>136</td>
<td>80</td>
</tr>
<tr>
<td>282</td>
<td>(2)</td>
<td>218</td>
<td>82</td>
</tr>
<tr>
<td>276</td>
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<td>(0)</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>521</td>
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<td>103</td>
<td>80</td>
</tr>
<tr>
<td>540</td>
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<td>300</td>
<td>178</td>
</tr>
<tr>
<td>315</td>
<td>(67)</td>
<td>14</td>
<td>480</td>
</tr>
<tr>
<td>557</td>
<td>22</td>
<td>424</td>
<td>233</td>
</tr>
<tr>
<td>284</td>
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<td>595</td>
<td>300</td>
</tr>
<tr>
<td>417</td>
<td>13</td>
<td>256</td>
<td>278</td>
</tr>
<tr>
<td>306</td>
<td>63</td>
<td>258</td>
<td>265</td>
</tr>
</tbody>
</table>

b Bushels per acre is substituted for any yield below 11 bushels.
per cent of the difference between the actual crop and an average-weather crop million bushels or exceed 300 million bushels. Figures in parentheses are purchases as on size of carryover.
of the difference between actual production and an average-weather crop in any given year, provided such purchase or sale does not raise total stocks to a level exceeding 300 million bushels or reduce them to a level below 80 million bushels.1

This plan represents a compromise between placing an average-weather crop on the market each crop year and accumulating the very large carryovers necessary to such an undertaking. An average-weather crop plus or minus two-fifths of the difference between the actual crop and an average-weather crop is placed on the market whenever this can be done within the range of storage stocks permitted. This plan would partially

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1The administration of such a proposal is of interest. Under the present crop reporting program the first estimate of production, based upon preliminary returns from crop correspondents, is issued on or about September 12. This first estimate would permit the storage agency to calculate the approximate amount which it should buy or sell to fulfill its commitment. If it were to buy, these purchases might be largely concentrated in the fall months during which time heavy deliveries normally depress the price. If it were to sell these sales should be spread more evenly over the crop year with perhaps some concentration in the latter months. The objective should probably be to spread sales over the year in such a way as to preserve the normal seasonal variation which approximates the cost of storage.

If subsequent adjustments are made in the second and third estimates of production these adjustments can be taken into account by the storage agency in completing its purchase or sales program. Since the second and third estimates normally differ little from the first no important difficulties should arise.

In formulating this storage plan we have envisaged the issuance of a directive to the storage agency to buy or sell 60 per cent of the difference between the actual crop and an average-weather crop during any crop year. Actually this may prove an oversimplification since stocks will be held by interests other than the storage agency. Farmers and commercial concerns may hold sizeable stocks over which the storage agency will have no control. (We are here assuming the grain trade to be in private hands rather than controlled by a government corporation as at the present time.)

We propose that the storage agency should take stocks in private
stabilize the total quantity of wheat available for domestic consumption and export during any crop year. It is intended to let free market prices move this wheat into consumption. Farmers would hold back the quantity which they wish to hold for feed, seed and year-end farm-carry-over at the existing price. The rest would be delivered into market channels with millers buying some 50 million bushels to supply the domestic market irrespective of price. The rest of the crop in commercial channels (excluding that held by the storage agency) would be exported or fed in Canada; the market price allocating the available supplies between these two markets.

A storage program such as that proposed here would iron out a good part of the year-to-year fluctuations in the size of crop placed on the market. This stabilization of supply would, in turn, reduce the variation in price attributable to changes in supply. It would lessen the difficulty of fixing forward prices for wheat at equilibrium levels since hands at the beginning and end of the crop year into account in determining how much grain to buy or sell. That is its directive is modified in such a way as to instruct the agency to place an average weather crop plus or minus 40 per cent of the difference between the actual and an average-weather crop on the market. If farmers or commercial interests buy or sell this 40 per cent the storage agency will neither buy or sell. In any case it will make up the difference between the 40 per cent and the quantity which private interests buy or sell.

Administratively this should not prove too difficult within practical tolerance limits. Data on stocks of grain in commercial channels are available weekly and surveys on farm stocks are now made as of March 31 and July 31 with this information available shortly thereafter. If necessary an additional survey of farm stocks would be made a month and a half prior to the end of the crop year. Taking changes in privately held inventory into account should therefore prove relatively easy.
the range of variation in one of the variables determining price would have been narrowed. This advantage we propose to exploit in dealing with price policy. A storage program would help to even out the supplies of wheat which Canada would each year have available for export. Such a stabilization of export supplies should contribute to the establishment of regular overseas sales outlets; to building up a clientele of customers who could depend upon Canadian wheat being available to them each year at going prices.

The program would not present an opportunity to legislators to accumulate stocks in an effort to hold prices up in the face of a declining demand. The plan is sufficiently clear cut as to operate without continual changes being made in the directives to the administrators of the storage agency. If the objective of a storage program is that of smoothing out weather-induced fluctuations in supply, rather than recurrent fluctuations in demand and this objective is once accepted, it should be possible to hold to this purpose.

If, however, the overseas demand for wheat proves as chaotic in the future as it did during the thirties such a storage program may well be impractical. During the latter half of the thirties, after the establishment of the Wheat Board in 1935, the object was to reduce stocks whenever possible by sales abroad. In the event of another catastrophic fall in demand there may be considerable pressure to build up wheat stocks against the prospect of improved prices at a future date. To adopt this practice, however, is to deprive consumers both at home and
abroad of wheat otherwise available for consumption and feeding and to build up large stocks which will prove costly to carry and may serve no effective purpose. If it is deemed expedient to supplement farmers' incomes, other and more effective means are available.

During a period of war other ends may supersede those acceptable in times of peace. In the early forties when export markets were cut off and Canada enjoyed above average crops it made good sense to build up larger stockpiles of wheat than our proposed storage program would permit. Certainly this wheat stood liberated Europe in excellent stead. Any such program as that suggested should be considered capable of revision in terms of emergency and the upper limit on permitted storage stocks raised.

A detail of the suggested plan which may encounter criticism is the holding of minimum stocks of say 80 million bushels through years of poor crops. Critics may question the desirability of holding stocks which are never used. This objection, if true, would be valid. To so interpret it, however, misconstrues the purpose of the minimum carry-overs. At the close of the crop year on July 31 it is necessary to hold sufficient stocks to keep millers, feeders and exporters supplied until new crop wheat becomes available. Even after this grain has been harvested it takes some time to move it to mills, to farms where it is to be fed or to ocean ports for export. This carry-over represents a necessary supply until new wheat becomes available rather than a supply which is held over year after year for an emergency for which it is not used in any case. These proposed stocks include wheat in all locations and not merely that owned by the storage agency.
3. A forward price for wheat

So far we have been concerned with a plan to stabilize the quantity of wheat available for sale either in the domestic market or for export. While elaborating this plan we have made the point that a partial stabilization of supply would reduce that part of fluctuations in price attributable to variable supplies. We propose to recommend other measures, designed to stabilize that part of the domestic demand for wheat which fluctuates from year to year, namely, the demand for livestock feed. However, since roughly two-thirds of the Canadian wheat crop is normally exported, Canada cannot adopt direct measures to ensure the maintenance of this demand although in co-operation with other nations she may contribute towards this end.

The question therefore arises as to whether the farmer is to be left at seeding time to guess the probable impact of the export demand for Canadian wheat upon the price which he will receive when his crop is harvested. This he cannot do with any degree of assurance or accuracy. Reducing the price uncertainty confronting individual farmers is an effective way of economising in the use of resources. We propose therefore that, prior to the time the farmer decides as to what crops he will sow on the acreage available to him, that the prices which he will receive for these various products when they are ready for market should be made known to him. The crucial questions then arise as to how these forward prices shall be determined and administered.

a. Administration. The writer believes that an organization could
be established within the Dominion government which could more effectively anticipate the market price for wheat for a period ranging from six to eighteen months in advance than can each of the thousands of individual farmers in Canada who produce wheat. Some experience in this sort of

It would seem that such an administrative unit might best be formed in the Department of Agriculture. It may be worth pointing out here that a rather arbitrary division of jurisdiction exists between the Department of Agriculture and the Department of Trade and Commerce. The Dominion Department of Agriculture is concerned, along with the Provincial Governments, with the production and marketing of farm products. The Department of Trade and Commerce deals with matters relating to the trading of farm products both in the domestic and export markets. Thus marketing and farm management research together with research in production methods under the Science Service and the Experimental Farms Service is within the Department of Agriculture. The administration of the grain trade through the Board of Grain Commissioners and the Canadian Wheat Board is under Trade and Commerce which also includes a Wheat and Grain Division, located in Ottawa, and responsible directly to the Minister. This latter division has been handling sales of grain under Mutual Aid and to UNRRA; and representing Canada at meetings of the International Wheat Council.

On the other hand, export sales of beef, bacon, cheese, eggs, milk and apples have been handled by special boards established within the Department of Agriculture. These boards operate with emergency powers and include the Meat Board (formerly the Bacon Board, 1939), the Dairy Products Board (1940), the Special Products Board (1941), the Agricultural Food Board (1943), (the Agricultural Supplies Board)(1939). All of these Boards, except the last, were set up by a Special Committee of the Cabinet on Food Production and Marketing. See A. D. P. Heaney. Cabinet Government in Canada: Some Recent Developments in the Machinery of the Central Executive. Canadian Jour. of Econ. and Pol. Sci. 12: 300. 1946.

There thus appears to be no logical basis upon which some of the services performed by the two departments are differentiated. Thus the Agricultural Prices Support Act establishes a board within the Department of Agriculture to support prices of any farm products, excepting wheat, at levels designated by the Cabinet. Prices paid to wheat producers are to be handled through Trade and Commerce and its agencies. For a summary of the organisation of the governmental machinery, both federal and provincial, dealing with agriculture, see Agriculture, A Reference Book for the Dominion-Provincial Conference on Reconstruction. Ottawa. 1945.
economic forecasting has already been derived from the pre-war Outlook conferences and from the annual Agricultural Objectives Conferences which have been held during the war.¹

During the war years the Dominion Department of Agriculture has sponsored annually an Agricultural Objectives Conference, held in Ottawa during the first part of December. Attended by representatives of the

¹A number of steps in the direction of obtaining more accurate and timely information on economic conditions in Canada have been taken recently. These include:
(a) A quarterly sample survey of the labour force by the Dominion Bureau of Statistics
(b) A quarterly and half-yearly personal interview of a cross-section of employers in selected industries and regions by the Department of Labour. This survey is used to make a 3 and 6 month forecast of employment.
(c) A quarterly review of imports and exports by the Department of Trade and Commerce.
(d) A quarterly survey of inventories held by industrial firms by the Dominion Bureau of Statistics
(e) An informal government committee has been established in Ottawa by the representatives of several federal departments. This committee is attempting to forecast changes in the level of business activity, thereby permitting remedial measures to be taken to maintain a high level of employment. This committee is attempting to build up fairly detailed forecasts of gross national expenditure one calendar year in advance. See Stewart Bates. Government Forecasting in Canada. Canadian Jour. of Econ. and Pol. Sci. 12: 361-378. 1946.

The establishment of a Board designed to provide the basic information essential to the setting of forward prices for agricultural products could constitute a logical extension of the activities of this informal committee which is attempting to forecast the level of economic activity in Canada. Such a Board operating under the aegis of the Department of Agriculture and either responsible to or closely integrated with the Agricultural Prices Support Board could probably best be organised on a commodity basis. Since export markets absorb such a high proportion of Canada's total agricultural output (20 to 40% by value at the farm), detailed knowledge of agricultural and economic conditions in other food exporting and importing countries would be essential. The Commercial Intelligence Service of the Department of Trade and Commerce has in the past paid scant attention to agricultural products. The editors of Canadian government commodity reviews have, perforce, relied heavily upon information published by the Office of Foreign Agricultural Relations of the U. S. Department of Agriculture.
Dominion and Provincial governments, the Canadian Federation of Agriculture, the Wheat Pool and other producer organizations, this conference has surveyed food requirements and productive capacity and made recommendations as to how Canada might, during the coming year, best utilize her agricultural resources. This conference has always been hampered, however, by its lack of knowledge of the government's policy.

Lacking knowledge of impending price changes, if any, committees of the Agricultural Supplies Board and delegates to this Conference charged with formulating provisional goals as bases of discussion, have wavered between two alternatives. The first was to make recommendations based upon the available resources and foodstuffs needed most urgently; without having regard to the effects of relative prices upon producers' decisions as to what they would produce.

The second was to accept the existing price structure for agricultural products as being likely to continue during the year and then attempt to forecast how much of each product farmers would produce. The objective would then be established somewhere near this level, perhaps tending toward the goal which would have been established if the first criterion had been accepted. The final result has differed for different products but this schism in purpose of the objectives conferences has never been resolved. Needless to say if farmers had paid attention to the recommendations of the Conference they might well have been in doubt as to whether they should attempt to produce more of the products asked for or attempt to maximize their own profits. The experience with hogs indicates that
farmers selected the latter alternative, as indeed they should have in the fact of such a confused policy.

We suggest that the pricing agency announce early in January a forward price for wheat and other grains.¹ Farmers will then be in a position to decide what part of their cultivated acreage they should devote to each of these grains in order to maximize their probable net income. These forward prices will represent minimum prices which farmers can look forward to receiving with certainty for any of the specified product which they may have to market.

b. **Basis of determination.** The forward price established should be that price which will move the quantity of wheat placed on the market during a given year into consumption during that same year. The administrative agency which is charged with establishing this forward price knows that the storage agency will place an average-weather crop plus or minus two-fifths of the difference between such a crop and the actual crop on the market. They will not know the acreage which will be seeded however. This seeded acreage will in large part be determined by the relative forward prices established for the crops competing for acreage with wheat. This interaction will therefore have to be taken into consideration when fixing forward prices.

If price uncertainty to farmers is to be reduced it would seem wise to announce early in January forward prices for all crops competing with

¹We assume that a storage program for coarse grains similar to that suggested in Table 16 for wheat will be put into effect. The proposed details of this plan are included below under the section on coarse grains.
each other for acreage. In the Prairie Provinces these would include wheat, oats, barley and probably flax seed. These forward prices might be fixed at (say) 90 per cent of the expected price in each case. They could be made effective from the first of August, following the January in which they were announced, for one complete crop year ending July 31. One objection to this proposal occurs to the writer.

Although some 70 per cent of the total grain marketings for the crop year were, when elevator space was available, normally delivered in August, September and October; the remaining 30 per cent was spread fairly evenly over the remaining nine months. If now a forward price effective August 1, is announced in January and this price proves sufficiently higher\(^1\) than the prevailing forward price or market price, farmers will hold grain which they wish to market until the next crop year.

Now certainly farmers should be given every opportunity of marketing their products where and when they can secure the highest net returns. However, it is loading the dice in their favour to give them the opportunity of knowing two forward prices at the same time and choosing the one which is the more favourable. Such a practice would hamper the operation of the present marketing system.

It is suggested, as a means of overcoming this objection, that a forward price, once announced, shall immediately become effective. That is, when forward prices for grains are announced in January, these prices shall become effective from then until the next January. This practice

\(^1\) By "sufficiently" higher is meant a price differential which the farmer believes will make it worth his while to store his grain.
would assure farmers a certain minimum price for spring wheat to be harvested the coming fall provided it is marketed by (say) January 15. If off-farm storage facilities are filled, a future sales contract could be negotiated with farmers who wished to sell and were unable to deliver. The grain would be stored on the farm with the government paying a storage charge. Once elevator space became available the farmer would be obligated to deliver the quantity of grain called for in his sales contract and settlement made on the basis of the market price prevailing at the time the sales contract was completed. Any compensatory payment necessary to bring the price up to the forward price in existence at the time of sale would also be paid.

This device would permit farmers to decide for themselves whether to accept the market or forward price prevailing up to January 15, or, whether to hold and take a chance on the forward or market price for the next year being higher. But they would not be able to have the best of two possible worlds; they would not be able to accept either the present price or hold for a minimum guaranteed price in the next period. If this latter alternative were accepted one forward price could not exceed its immediate predecessor by more than the approximate cost of storage for six months or farmers would hold their wheat for this higher price. It would also encourage them to hold their wheat until the next forward price was announced. Such a plan would interfere with the marketing process.

The object then in establishing a forward price is to make the best
forecast possible of what the average market price will be during the crop-year for which this price is guaranteed. This method will be open to an objective evaluation ex post; the extent to which the actual market price prevailing during the crop year differs from the forward price will attest to the accuracy or lack of accuracy of the forward price as a forecast. If the market price prevailing at the time farmers sell their wheat is below the forward price, the pricing agency will pay the farmer the difference as a compensatory payment. No effort will be made to increase the commercial price of wheat; it will flow into consumption at the market price.

If, on the other hand, the market price exceeds the forward price we propose to permit the producer to sell at the market price and retain the difference between this higher market price and the forward price.

This practice will result in some subsidisation to the producers of farm products unless forward prices are always accurate. If we assume that output is constant, that price is variable and that the distribution of the errors of forecast are symmetrically distributed, farmers will receive a subsidy 50 per cent of the time. This subsidy might be reduced by setting the forward price at a level (say) 10 per cent below the expected price.\(^1\) The support fund would gain 10 per cent of

\(^1\)An alternative to establishing the forward price at a high fixed percentage of the expected price would be to set the forward price equal to the expected price but to make no compensatory payments unless the market price is 10 per cent or more below the forward and then to pay only the difference between the market price and 90 per cent of the forward price. For example, if the expected price of wheat is $1 the forward price will be set at $1 per bushel. No compensatory payment will be made unless the market price of wheat falls below 90 cents. If the market price is 85 cents a bushel the producer will be paid 5 cents per bushel. This alternative has the merit of informing the farmer of the
the expected price, or some part thereof, in years when forecasters overestimated the expected price. This gain would reduce the amount of subsidies paid to farmers. Actually both output and prices vary from year to year and with a negatively sloping demand curve, above average crops bring a below average price and conversely. Under these circumstances even if actual prices were systematically distributed about the forward prices and the pricing agency was able to recover any excess of the market price over the forward price, farmers would still be subsidised since the storage agency would usually pay on large crops and collect on small ones.

The lower, relatively to the expected price, forward prices are set the less farmers will be subsidised; also the less will price uncertainty be reduced. In fixing forward prices a compromise will have to be reached between these two factors. If forward prices are fixed so low that farmers believe there is little chance of their exceeding the market price they will eliminate less uncertainty than if they are fairly close to expected prices. In the latter case they will play a more effective role in allocating resources.

It might be argued that, if the forward pricing agency is prepared to bring prices received by farmers up to the level of the forward price, it should also be prepared to return any excess of the market price over the forward price to the fund of the administrative agency. In this case most probable market price for wheat and yet will not make any larger transfer of income to farmers than the fixing of the forward price at 90 per cent of the expected price.
the forward price would become the actual price which the farmer would receive. Actual prices which would be received for the various grades of the commodity would be known with certainty one or more production periods in advance. Under the present proposal only the minimum price would be known with certainty and the expectation of possible prices above this level would presumably be distributed according to some probability distribution.

Farmers will then be subsidised under a system of forward prices by the transfer to them of funds from the Consolidated Revenue Fund. The amount of these transfers may be reduced by two devices: (a) the administrative agency may recover by taxation any difference between the market and the forward price when the former exceeds the latter. (b) the forward price may be fixed at (say) 90 per cent of the expected price, thereby reducing the volume of compensatory payments when market prices fall below the forward prices.

The amount of the subsidies paid to farmers under a non-recovery plan with forward prices fixed at 100 per cent of expected prices would depend upon several factors:

(a) The accuracy of the forward price. If forward prices, as forecasts of market prices, proved accurate no transfers would be involved. To the extent that forward prices are low the agency would stand committed to make up the difference. Complete accuracy of forecast is, of course, not possible; the greater the degree of accuracy the smaller the compensatory payment. As suggested one means of reducing this payment would be to fix effective forward prices at some percentage of expected prices. Should the agency prove itself capable of forecasting prices within (say)
10 per cent of actual prices and the forward price was fixed at 90 per cent of the expected price no compensatory payments would be necessary.\(^1\)

(b) The elasticity of the demand for the product within the relevant range. Were the demand curve perfectly inelastic (vertical on the graph), if the agency were to recover any excess of market prices over forward prices, and market prices were symmetrically distributed about the forward price, there would be no subsidy. Given these latter two conditions only, however, and some elasticity of the demand curve, a transfer payment to producers would be involved. The greater the elasticity of the demand curve the greater the subsidy since the amount recovered on a small crop would be much less than the total compensatory payment on a large crop, even though the difference between the forward and market price were the same in both cases. Also the demand curve may

\(^1\)Johnson, The Theory of Forward Prices for Agricultural Products, distinguishes between two possible types of errors which may be made by the pricing agency in forecasting forward prices. First, the relative prices of agricultural products competing for the same resources may be in error. Secondly, the general level of forward prices for farm products may be either too high or too low. He regards the first type as the more wasteful since it may result in a less than optimum allocation of resources. The degree of misallocation will depend upon the extent of the error in the forecast and also upon the elasticity of substitution of factor inputs. If the general level of farm prices is over-estimated it will result in income transfers to farmers. If the drop in the general level of farm prices is a symptom of the onset of a depression the larger compensatory payments may have anti-cyclical effects. Whether they do or not would appear to depend on whether the money is raised by taxation, and if so, upon the relative propensities to consume of the taxpayers and of those farmers who receive the payments.
well be more elastic for larger outputs and lower prices than for smaller outputs and higher prices—i.e., the demand curve may be convex to the origin. This factor will tend to increase the volume of net transfer payments to farmers.

The decision as to whether the administrative agency should attempt to recover the difference between the market and the forward price when the former exceeds the latter depends upon several factors:

(a) The administrative feasibility of recovering this excess. A tax equal to the difference or some portion of the difference between the market and the forward price might be levied on the farm product when it enters commercial channels. One difficulty presents itself. If this proposed scheme were in effect, the opportunity cost of wheat, for example, to the livestock feeder who produces his own wheat for feed would be the forward price, not the market price. Since it is the market price which should determine whether or not wheat should be fed, this procedure would result in a distortion of resource use—too much wheat would be fed. Then livestock feeders who feed more wheat than they grow would be prepared to buy wheat from other farmers at some price above the forward price but below the market price. Conceivably if this demand for wheat for feed constituted a significantly high proportion of the total demand for wheat, enough wheat would be diverted from the commercial market to an inter-farm market as to depress the price in the former while raising it in the latter. This sort of situation is not likely to prove important in the case of wheat but might with a feed crop such as oats.
(b) Any attempt to recover all or a part of the differential between market and forward prices might result in the exertion of considerable pressure upon the administrative agency by producer groups in an effort to keep forward prices up and thus avoid recovery taxes. Such pressures might well prejudice the successful operation of a forward price scheme.

(c) The levying of a tax at the time a product enters commercial channels would encourage farmers to attempt to divert supplies. Small millers and feed mixers, local slaughterers and creameries would be tempted to buy from the farmer at something over the forward price rather than legitimately at the market price. Minor evasions would be difficult to check and could prove a constant source of irritation.

(d) Any attempt to tax away the difference between the market and forward price would encourage farmers to hold their wheat until a new forward price was announced in the hopes that the forward price for the next year's crop would be higher.

It would appear to the writer, therefore, that unless there are strong objections on political grounds to permitting a degree of subsidy to farmers in connection with forward prices that the pricing agency should make no attempt to recover any excess of forward over market prices. The most effective way of limiting the transfer payments would be to set forward prices somewhat below expected prices, or to guarantee only a percentage of the forward price, even though this practice involved some sacrifice of price certainty.

c. Implementation of forward prices—compensatory payments. When market prices fail to come up to the established forward price it is proposed to make up the difference by means of direct payments, to which
Sehults has applied the adjective "compensatory". These payments would be adjusted for grade, season and locality just as were the forward prices. The making of compensatory payments is subject to some difficulties which have been noted in examining the application of the Schultz plan. The principal of these arise from the necessity of avoiding duplication in payments, arising from inter-farm sales, and discrimination between producers.

It will be recalled that we suggested that, when one farmer sells a product eligible for compensatory payments, the vendor should require the purchaser to supply him with a signed statement specifying the quantity and description of the product. The vendor would in turn submit this document to the forward pricing agency in support of his claim for a compensatory payment. The knowledge that such a claim would be made by the vendor would deter the purchaser from failing to declare his purchase should the latter in turn sell the same commodity and submit a claim for a compensatory payment.

One difficulty in this suggestion is that of grade of product. No facilities for grading are available in most inter-farm sales. Perhaps this decision might be left to the vendor and purchaser to work out between themselves. So long as the compensatory payments on all grades are the same, no difficulty would be involved. If the payment on one grade is higher than on another the vendor will gain by grading the product as high as possible while the purchaser will lose. Collusion would not

1See above Chapter 3.
facilitate evasion; if the two parties to a transaction were unable to agree, a sample of the product, in the case of grains, could be submitted to a marketing agency for a grade.

The second difficulty inherent in the Schults proposal for compensatory payments, that of discriminating among different types of producers, is more troublesome. The opportunity cost to the wheat-livestock farmer of wheat fed is the forward or market price for wheat, whichever is the higher. If the forward price is the higher a compensatory payment must be made to bring the price to the producer up from the market to the forward price. The problem is how to make this compensatory payment on wheat fed by the wheat-livestock farmer.

It will be recalled that we have offered two suggestions in an earlier section, neither of which we regard as satisfactory.\(^1\) The first was to eliminate compensatory payments and hence forward prices on feed grains. The writer does not regard this as a desirable step since a need exists for reducing the high degree of price uncertainty affecting the grains around which the agricultural industry in the Prairie Provinces is built. Also wheat is used as a feed grain so this proposal would remove forward prices on this important crop. The second proposal was to color grain to be fed and to pay farmers their compensatory payment at the time the grain was colored.

This latter suggestion still appears feasible from an economic standpoint. If an inexpensive way to color grain were available this technique might prove highly useful. A dust treatment of some type or other is

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\(^1\)See above Chapter 3.
required since the use of a solution would require drying which is costly in terms both of necessary equipment and deterioration of the grain.

Although we do not have any practical proposal which would eliminate this discrimination in favour of the specialized feeder who need pay only the market price for his feed as compared with the feeder-grain grower to whom the opportunity cost of feed is the forward price, we do not think this shortcoming should be permitted to block a system of forward prices for wheat and other grains. This type of discrimination has been inherent in Canada's grain policy since the establishment of equalization payments on oats and barley and a drawback on wheat used for livestock feed. It is a fairly safe statement though that this discrimination has, along with other factors, discouraged hog production in the Prairie Provinces.

d. Effect on gross farm income. If all wheat produced in Canada were consumed in Canada it is likely that under a free market the price would vary inversely with output in such a way as to partially stabilise farmers' gross income from the sale of wheat. In other words, price would be determined by output, assuming constant demand, and the demand curve would be negatively inclined. If the demand curve were a rectangular hyperbola within the relevant range, gross receipts would be constant irrespective of the size of the crop.

Normally a high proportion of the Canadian coarse grains crops are consumed domestically. If we assume that the elasticity of demand for these crops varies from 0.6 to 0.8 the gross receipts to farmers would probably tend to be fairly constant under conditions of constant
demand. The elasticity of the demand for wheat may, however, be greater than this. Wheat prices have in the past been determined by supply and demand on an international market. The supply is only partially determined by the Canadian crop. The demand for Canadian wheat may, therefore, be expected to be fairly elastic. A poor Canadian crop might be expected to result in only a slightly higher world price and a large Canadian crop in only a slightly lower price. Under these conditions the free market would not provide stable gross receipts to farmers from the sale of wheat even if the demand did not fluctuate from year to year. A large crop would bring a high gross return and a small crop a low gross return.

A forward price for wheat determined on the criterion of moving an average-weather crop into consumption or export will probably further unstaibilize total gross receipts from wheat sales. Irrespective of the size of the crop the storage agency will sell or buy sufficient wheat to place a near average-weather crop on the market. The forward price

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So far as the writer is aware, no statistical studies aimed at determining the shape of the demand or supply curves for any farm product in Canada have been published.

That is an average-weather crop plus or minus two-fifths of the difference between the actual and an average-weather crop insofar as the limits imposed upon storage stocks permit.
to the farmer is certain and this latter provision will tend to narrow
variations in market price about the forward price. The price of wheat
will then not be permitted to vary inversely with the size of the crop.

Our objective is to stabilize income received by the individual farm-
er and not farmers in the aggregate. It is known that an unaided market
system in which price fluctuates inversely with production does not stab-
ilize the per acre incomes of all farmers seeding that crop. The storage
program which we have suggested will partially stabilize the price of wheat
in Canada, but only partially since the domestic price of wheat depends upon
the price in world markets. The proposed plan will come much closer to stab-
ilizing the domestic price of coarse grains since only a small proportion of
the Canadian crop is exported. A stable price will not, however, yield
stable incomes to individual producers. A crop insurance program will help
to accomplish this latter objective; such a program should constitute an
integral part of any price policy for Canadian agriculture. Even with crop
insurance, however, the individual farmer's cash receipts from sales of wheat
will not be completely stabilized from year to year since the price of this
grain is determined on a world market.

4. Summary

Owing to highly variable weather conditions Canada's production of
wheat varies greatly from year to year. Since Canada is the principal
exporter of hard red spring wheat she has built up a market among over-
seas millers for this wheat for blending purposes. The writer believes
that this market might be enlarged if overseas customers could depend
upon a fairly steady supply of wheat being available to them each year.
Such stabilization of supply calls for a storage program.

Complete stabilization of supply would prove excessively costly in terms of the large storage stocks necessary to this end. A plan is suggested whereby an average-weather crop plus or minus two-fifths of the difference between such a crop and actual production would be placed on the market each year. This program would operate within stock limits of 80 and 300 million bushels.

In an effort to improve the efficiency of a free market from the point of view of allocating resources a forward price for wheat and for those crops which compete with wheat for the use of agricultural resources is suggested. These forward prices would be announced in January of each year and would be effective for a period of one year from the date announced.

The forward pricing agency will undertake to implement its guaranteed prices by paying directly to farmers the difference between the market price and the forward price in the event the latter exceeds the former. If the market price is higher than the forward price no effort should be made to recover the difference from farmers. In order to reduce the subsidy payments to farmers no compensatory payment should be made unless the average market price falls below, say, 90 per cent of the expected price. The guaranteed minimum price would also be only 90 per cent of the expected price.

Compensatory payments can be administered in such a way as to avoid interference with inter-farm sales. There are still some difficulties,
however, involved in preventing discrimination in favour of specialized feeders and against feeders who produce their own feed grains. These obstacles are not sufficiently serious as to warrant rejection of the plan and may yet prove capable of solution.

Since the price of Canadian wheat under a free market system is determined on world markets, the size of the Canadian crop has a relatively small effect on world prices. In other words, the demand for Canadian wheat is fairly elastic. Under these conditions the price of wheat in Canada varies inversely with the available supply but this inverse variation is not adequate to stabilize farmers' gross receipts from wheat sales. The fixing of a minimum price at a level designed to move a near average-weather crop into consumption will further reduce inverse variations of price with output, thereby enhancing the variation in gross farm receipts from wheat sales. Since we are concerned in any case with promoting greater stability of income to the individual farmer a system of crop insurance is recommended. Relatively stable prices and more regular sales for the individual farm would reduce fluctuations in the receipts of individual farmers from wheat sales.

C. A Stabilization Program for Coarse Grains

The stabilization measures suggested for coarse grains are parallel to those already outlined for wheat. Average yields per seeded acre fluctuate from year to year. We wish to iron out those largely uncontrollable fluctuations in yield by means of a storage program in order, first, to
assure feeders a more regular supply of concentrates and secondly, to eliminate the price fluctuations which result from a variable supply of grains. The writer believes that the placing of a near average-weather crop of feed grains on the market each year is essential to the elimination of short run price fluctuations resulting from variable yields.

The second element of this stabilization program is the fixing of forward prices for coarse grains well in advance of seeding time in order to enable farmers to compare the certain minimum prices which they will receive for the grains which they harvest. Some economists have contended that forward prices for coarse grains are not necessary if "effective yields" are stabilized by a storage program and forward prices are announced for livestock. The difficulty with this argument

1By "effective yield" is meant average yield per acre placed on the market and fed on the farms where grown.


D. Gale Johnson in his Theory of Forward Prices for Agricultural Products, states on p. 300:

"An important point should be noted—no compensatory payments would be required for the feed grains. The guaranteed prices on the grains would be derived from the livestock prices. These prices would be used as a basis for loans and, given the guaranteed prices of livestock, would represent the actual market prices for an 'average' crop. If crop yields did not vary, the guaranteed price for livestock would provide sufficient price assurance for grain producers. Given the fluctuations in yields, storage must be retained to obtain the desired distribution of output in time and the price assurance for the grains."

It should not be inferred from this statement that forward prices would not be fixed for feed grains. Indeed Johnson argues that "not many of the feed grains can be excluded [from inclusion in a system of forward prices]" (ibid. p. 276.) He apparently means that forward prices for feed grains and for livestock will be announced and that the ratio between the forward prices of these inputs and outputs should be
as applied to Western Canada is that wheat, oats and barley are closely competitive. To announce a forward price for wheat and not for these other two grains would likely cause an uneconomic diversion of acreage from coarse grains to wheat. Such a diversion would not be economic for the economy as a whole although it might be for the individual firms making the shift in view of the greater price certainty obtaining for wheat.

1. A storage program

The ideal program, ignoring cost considerations, would place an average-weather crop on the market year in and year out. The occasional such as to move the volume of livestock produced into consumption at the forward price. The market price for feed grains during the feeding period will then be equated to the forward price through the market operations of the storage agency.

The relevant implications of this ingenious proposal appear to the writer to be as follows:
1. A fixed certain forward price, not a floor price, would be fixed for feed grains, including wheat. Since grain prices would be fixed in advance and the storage agency committed to the maintenance of these prices any relative shifts in demand or errors on the part of the pricing agency in fixing these prices relatively to each other could lead to a heavy demand for those commodities which are relatively under-priced.
2. In Canada, at least, no national storage agency would be capable of fixing the market price for wheat through market operations without interfering with the export trade.
3. It is not clear as to the size of the feed grain stockpiles which it would be necessary to hold in order to determine market prices through sales and purchases.
4. The administration of a storage program under a scheme such as this would be much more difficult than that proposed by the writer, since under the latter the storage agency would be instructed to buy or sell readily determined quantities of grain regardless of the price.
5. Presumably the forward pricing agency would have to determine the quantity of livestock products which they think should be produced and the price at which this quantity could be moved into consumption. Given some knowledge of the supply curve of the product it should then be possible to determine the price of feed grains necessary to call forth this output. The crucial problem would be the determination of the quantity of livestock product to be produced.
occurrence of cycles such as the 1929-37 period, during which yields are low because of drought would necessitate the carrying of very large stockpiles. The costs of storing sufficient quantities of oats to completely even out supplies would clearly outweigh the gain to be derived from complete stabilisation as is also true for wheat. In order to have placed an average-weather crop of oats on the market each year from 1929 through 1937 would have required an initial stock of about 375 million bushels or nearly a year's crop. A compromise with partial stabilisation of supplies and more moderate stocks therefore seems desirable.

a. For oats. It is suggested that a storage agency be established and directed to buy or sell, in each crop year, four-fifths of the difference between the actual crop harvested and an average-weather crop. If, however, such sales or purchases would lower total stocks below 25 million bushels or raise them above 90 million bushels, then the quantities bought or sold should be so limited as not to break these stock limits. An average-weather crop is again defined as the product of the seeded acreage and the five year moving average yield.¹

It is not intended that the entire stock should be held by the storage agency but rather that the agency should make up the difference between the required stocks at July 31st of each crop year and those held by farmers and commercial companies. The storage agency would not be directly

¹Whenever the annual average yield for any year falls below 25 bushels per acre, 25 bushels is substituted for that yield, in calculating the moving average yield. This practice permits the exclusion of those very low yields in drought years which would increase the variation in the size of crop placed on the market from year to year even though seeded acreage remained constant.
concerned with the price of those grains which it was directed to store but would buy and sell at market prices in order to fulfill its directives.

If demand or supply conditions change in such a way as to warrant either an increase or decrease in the supply of oats this fact will be indicated by the market and forward prices for oats and will, therefore, be reflected in seeded acreage. A five year moving average yield has been selected in order to take account of improved yields which may result from new varieties, improved cultural practices, the more widespread use of fertilizer and so on.

The statistical details of this suggested storage program have been worked out for the 1921-45 period. They are included in Table 17. It will be noted that the plan does not completely eliminate the variation in the proposed disappearance of oats from year to year. There are several reasons for this which are implicit in the scheme itself. In the first place acreage varies from one year to the next and it is essential that these variations be reflected in the supply of grain. Secondly the storage agency is instructed to buy or sell 60, not 100, per cent of the difference between an actual and an all-weather crop in any given year. Thirdly, in 11 out of the 25 years the clause limiting stocks prevented the agency from buying or selling the full 80 per cent of the difference.

b. For barley. The storage program suggested for barley differs only in detail from that proposed for wheat and oats. The stock limits are placed at 10 and 65 million bushels respectively and the storage agency
### Table 17

Effect of a Proposed Storage Program for Oats on Disappearance and Carryover

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Acreage (000 acres)</th>
<th>Seed Acre Average</th>
<th>Yield per Acre (bushels)</th>
<th>Storage Agencyb</th>
<th>Beginning</th>
<th>Seeded</th>
<th>Seed Acre Average</th>
<th>Yield per Acre (bushels)</th>
<th>Production Acre (million bushels)</th>
<th>Carryover</th>
<th>Buys</th>
<th>Sells</th>
<th>Act</th>
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<td>28.8</td>
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</table>

*aIn calculating this moving average yield, 25 bushels per acre is substituted for any year.

*bThe storage agency is directed to buy or sell 80 per cent of the difference between the expected and the actual acre, except that the carryover may not be less than 25 million bushels or exceed 90 million bushels, or sales which were restricted because of limitations on size of carryover.*
Table 17

Storage Program for Oats on Disappearance and Carryover, 1921-1945

<table>
<thead>
<tr>
<th>5-year Moving</th>
<th>Production:</th>
<th>Storage Agency&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Stocks</th>
<th>Disappearance</th>
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<tbody>
<tr>
<td>Average Yield per Acre&lt;sup&gt;a&lt;/sup&gt;</td>
<td>(million bushels)</td>
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<td>Actual:</td>
<td>Proposed:</td>
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<tr>
<td>28.8</td>
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<td>(19)</td>
<td>44</td>
<td>44</td>
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<td>55</td>
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<td>(10)</td>
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<td>35</td>
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<tr>
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<td>26.7</td>
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<td>98</td>
<td>81</td>
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<sup>a</sup> Yield, 25 bushels per acre is substituted for any yield below 25 bushels.

<sup>b</sup> Buy or sell 80 per cent of the difference between the actual crop and an average-weather crop of less than 25 million bushels or over 90 million bushels. Figures in parentheses are purchases or limitations on size of carryover.
is directed, within the limits imposed by these storage restrictions, to buy 100 per cent of the difference between the actual and an all-weather crop. These limits on storage stocks would have precluded any stabilization of supply during the 1929-37 period. The relatively small acreage seeded to barley during the twenties would not have permitted the accumulation of a stockpile of any size prior to the long period of low yields beginning in 1929. The statistical details of the application of this storage program for the 25 years period from 1921-1945 are included in Table 18.

2. **Forward prices**

We suggested that a forward price for wheat, effective from date of announcement for one year, be established each January 15th. This would give farmers plenty of time to complete their plans for the coming crop season. It will be recalled that the reason for making the forward price effective at the date of announcement, rather than at the beginning of the next crop year, was to avoid damming up the regular flow of wheat to market. Otherwise farmers would hold back their grain until the new forward price had been announced and then sell if the new price, effective August 1, was not sufficiently higher than the existing price\(^1\) to warrant storing for 6\(\frac{1}{2}\) months or continue to hold if it was. Such a practice would interfere with an efficient marketing practice of moving wheat straight from the combines or separators to country elevators. Moreover,

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\(^1\) Either the market or forward price existing as of January 15 depending upon which was higher.
### Table 18

**Effect of a Proposed Storage Program for Barley on Disappearance and Carryover**

<table>
<thead>
<tr>
<th>Crop Year</th>
<th>Acreage</th>
<th>Average Yield per Seeded Acre</th>
<th>5-year Moving Average</th>
<th>Production</th>
<th>Storage Agency(^b)</th>
<th>Buys</th>
<th>Sells</th>
<th>Actual</th>
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<td>(bushels)</td>
<td>(bushels)</td>
<td>(bushels)</td>
<td>(million bushels)</td>
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\(^a\)In calculating this moving average yield, 19 bushels per acre is substituted for any year.

\(^b\)The storage agency is directed to buy or sell the difference between the actual crop and carryover, which may not be less than 10 or exceed 65 million bushels. Figures in parentheses are because of limitations on size of carryover.
Table 13
Storage Program for Barley on Disappearance and Carryover, 1921-1945

<table>
<thead>
<tr>
<th>Year</th>
<th>Ringing Year Production</th>
<th>Storage Agency Buy</th>
<th>Sells</th>
<th>Stocks Production</th>
<th>Proposed</th>
<th>Disappearance Actual</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>(bushels)</td>
<td>(million bushels)</td>
<td>(million bushels)</td>
<td>(million bushels)</td>
<td>(million bushels)</td>
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<td>4</td>
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<td>(0)</td>
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<td>9</td>
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<td>14</td>
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<td>(30)</td>
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<td>36</td>
<td>29</td>
<td>59</td>
<td>157</td>
<td>194</td>
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*19, 19 bushels per acre is substituted for any yield below 19 bushels.*

*or sell the difference between the actual crop and an average-weather crop except that the 65 million bushels. Figures in parentheses are purchases or sales which were restricted.*
if farmers decided to hold large stocks on farms the storage agency would have to sell grain in order to place a near average-weather crop on the market. In years when stocks held by the storage agencies were low this might not be possible. We concluded, therefore, that farmers should not be able to choose the better of two guaranteed prices but must, if they held grain beyond January 15, take the risk of a lower price.

These arguments appear as valid for coarse grains as they do for wheat. We propose that the forward prices for wheat and coarse grains be announced simultaneously on or about January 15 and that these new prices be effective as soon as announced.

It is also intended that compensatory payments be used to bring the prices received by farmers up to the level of the forward price. These payments are again to be adjusted for season, grade and location. The same difficulties as to interference with the inter-farm sales and discrimination between different types of producers arise with coarse grains as with wheat. We shall not, therefore, repeat that discussion here except to note that, as yet, no satisfactory solution for the problem of discrimination among producers has come to our attention.

Forward prices will again be fixed at a level equal to the expected equilibrium price but only 90 per cent of this forward price will be guaranteed. The equilibrium price is again defined as that price which will move an average-weather crop into consumption. In fixing this price the agency will performe have to take into account the effect of the price established upon the acreage seeded which will also depend upon prices
established for other crops competing for the same resources. In the event the market price proves higher than the forward price it is not intended to attempt to recover the difference since this practice would involve many difficulties.\(^1\)

We have noted that for products with an elasticity of demand of approximately 0.7 that moderate changes in output will cause only moderate changes in gross receipts.\(^2\) A storage program for coarse grains which will place a near average-weather crop on the market will tend to stabilize price, as indeed it is intended to do. However, this stabilization of price will unstabilize gross farm income from the product as in the case of wheat. We are primarily concerned, not with the stabilization of total receipts from a product, but with the stabilization of the individual farmer's income from that product. Given relatively stable prices, the stabilization of the individual farmer's income therefore resolves itself into the problem of stabilizing individual farm output. A system of crop insurance for grains is therefore an essential part of any stabilization program.

3. **Summary**

In this chapter we have proposed a stabilization program for the principal Canadian field crops—wheat, oats and barley. This program has been built on the premise of a high level of employment in the economy as

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\(^1\)See above p. 137.

\(^2\)See footnote 1, p. 142.
a whole. It is therefore a plan which is designed essentially to even out those fluctuations in the supply of grains which are attributable to variable weather conditions. The two essential parts of the proposed program are a storage plan and a forward price scheme. Evening out fluctuations in the price and supplies of feed grains is essential to a stable output of livestock. The immediate task now falls upon us of integrating our proposals for feed grains with a stabilization plan for the livestock and livestock products industry, fluctuations in the output of which are uneconomic in terms of resource use and cause marked variations in farm income.
VII. STABILIZATION OF THE OUTPUT OF LIVESTOCK AND LIVESTOCK PRODUCTS

One of the principal reasons that we have been concerned with stabilizing the prices and supplies of feed grains was to permit greater certainty for livestock producers. Production cycles result from variations in the prices of livestock and grains. When livestock prices are high relatively to costs of production, of which costs grain constitutes an important constituent, breeders tend to assume that these prices will continue unchanged and expand their enterprises accordingly. When this expanded supply of livestock products is placed on the market the price is depressed and breeders tend to underestimate the price for the next production period and hence produce too little. These successive under and over-estimates of price cause marked fluctuations in output which are nowhere better illustrated than in the production of hogs.

Forward prices have been suggested as an appropriate technique for overcoming these pendulum-like fluctuations. In this chapter we will be concerned with the possible application of a forward pricing technique to livestock products in Canada. The writer believes that it is possible to announce prior to breeding time, a minimum price, for some livestock products at least, which will prevail during the time at which these products are marketed. Such minimum forward prices will be announced in terms of specific grades, dates and location and will be implemented where necessary by direct compensatory payments to farmers.
Since most livestock products cannot be stored unless processed and then only at a relatively high cost, supplies cannot be evened out over time by the use of a storage program as in the case of grains. Fortunately the output of livestock products is not dependent upon variations in weather to anything like the same extent as are grains. If the forward pricing agency can anticipate prices fairly accurately for at least one production period in advance, and make these anticipated prices explicit in the form of forward prices, much of the fluctuation in livestock output from year to year will be eliminated. An additional element of certainty would be added, should it prove possible to apprise farmers, not only of the price which would prevail for their livestock at the time at which it is marketed, but also of the market price of feed grains during the feeding period. This latter problem needs to be explored.

Forward prices for livestock and livestock products should again be established according to the same criteria as suggested for grains. The forward price would be equal to the expected equilibrium price; the floor price would be 90 per cent of the forward price. The equilibrium price for livestock products will be that price which will move the quantity produced into consumption or export in the period during which the forward price prevails. But the equilibrium price will, of course, be one of the principal determinants of output which will also depend on the expected prices of inputs and of other outputs. One of the principal inputs is feed grains. In establishing a forward price for any given livestock product then, the forward pricing agency will have to pay careful attention
to the prices to be fixed for competing products as well as to the expected price of feed grains. Possibly these points can be best made with reference to specific products.

A. A Forward Feed-hog Ratio

The pig breeder will be concerned not only with the price which he will get for his hogs when they are sold but also with the cost of producing these hogs. One important constituent item of cost will be the cost of feed. If the pig producer knows both the price of the finished product and the price of the most important unit of input prior to breeding, a good part of the uncertainty connected with hog production will have been eliminated. If the breeder knew the price of feed which would prevail during the feeding period, he would be in a much better position to estimate his net returns than if he does not know what his feed costs will be. It does not, of course, make any difference whether he produces the grain which he feeds or buys it; the cost to him will be the same if the pricing system for feed grains does not discriminate in favour of either the feeder who buys or the feeder who raises his own feed grains.

It might be thought that if we could announce a forward price for feed grains at the same time that we announced the forward price for hogs, this forward feed price to be in effect during most of the hog feeding period, that we would have made possible a certain price for both hogs and feed grain. Unfortunately this is not true under the pricing plan for grains which we have proposed. We have made provision for a forward
price for feed grains but this represents a minimum, not a fixed price.

In the event the market price differs from the forward price, the former and not the latter will be the effective price to the feeder.¹

It will be recalled that we proposed to announce a forward price for grains in mid-January; this forward price to be effective for one year from the date of announcement. If this plan is to be retained and if a forward minimum, rather than a fixed price for feed grains is to be announced, we must depend upon some other device to ensure breeders any given forward relationship between hog and feed prices. A forward feed-hog ratio is suggested as being appropriate for this purpose.

¹Assuming again that we can devise a technique which will make the opportunity cost of feed grains to the feeder who raises his own grain equal to the market and not the forward price. One marked advantage of the forward pricing scheme for feed grains proposed by Shepherd in Changing Emphasis in Agricultural Price Control Programs, Journal of Farm Econ. 26:498, 1944, is that the forward price would also be the market price. Under this plan the simultaneous determination of forward prices for livestock and for feed grains would give the producer a minimum price for his livestock product and a definite fixed price for one important input—feed grain. As pointed out above, p. 146, footnote 2, in reference to a similar proposal by Johnson, the crucial problem is the determination of the quantity of the final (livestock) product which is to be produced. For any quantity determined there will be a price at which this output can be moved into consumption. Given this price, the price of feed grains may be so determined as to lead to the production of the pre-determined output of livestock products. Shepherd suggests that the determination of the quantity of the livestock product to be produced should be based on nutritional needs. (Ibid. p. 498.) Since Canada exports roughly a quarter of her pork and one tenth of her beef output this expected export demand would necessarily have to be taken into account in determining production objectives. Under Shepherd's plan the storage agency will be directed to conduct such open market operations as are necessary to equate market prices for feed grains to forward prices during the period for which forward prices have been established. When using a storage plan in this way it would seem essential for the pricing agency to "keep its eye" on the storage stocks of feed grains when determining the quantity of livestock products to be produced.
There are three grains which are widely fed to hogs in Canada—barley, oats and wheat. Barley and wheat are used for fattening while oats is the standard feed for young pigs. A forward barley-hog and wheat-hog ratio might be announced prior to breeding time to be in effect from farrowing time until the hogs are marketed. The prices of these two grains will change over this period, both absolutely and relatively to each other. The hog producer would be guaranteed a price for his hogs equal to the announced ratio times the average market price of either barley or wheat in his region for the month prior to sale. Since the use of two grains may give two hog prices, it is the lower price which is to be guaranteed to the producer.

1. For spring pigs

Sows to farrow in the spring in Canada are usually bred in December or early January. It is, therefore, suggested that a forward price for spring-farrowed hogs be announced not later than November 15. Farrowed in April or May, the bulk of these hogs will be marketed from September through to the following March and the forward price should apply to this period. In terms of specific dates, a forward price might be announced on November 15, 1946, for pigs marketed from October 1, 1947, to March 15, 1948.

Let us suppose that the forward pricing agency after appraising the probable demand for bacon and pork from October 1947 to March 1948 and the probable supply with various feed-hog ratios determines upon a barley-hog ratio of 18 and a wheat-hog ratio of 14. These two ratios will be
announced in November 1946 and hog producers assured of a price for live hogs equivalent to whichever is the lower at the time of sale. Any difference between the market price for hogs and this guaranteed price will be made up to the farmer in the form of a direct or compensatory payment.

This device would permit the making of a forward price for hogs in November and, although the administrators of such a program would likely have determined upon the probable forward prices for grains at this time, forward grain prices in the middle of January. Once farmers become accustomed to a feed-hog ratio it would probably mean nearly as much to them as a forward price in dollars and cents. It should prove fairly easy to demonstrate the significance of such a ratio to farmers simply by taking possible grain prices as examples and showing the computation of the forward price.¹

 Going back to our preceding example, if the forward barley-hog ratio is 18 and wheat-hog ratio 14, and the average prices of the specified grades of barley and wheat are 50 and 65 cents a bushel respectively, the hog producer will receive $9 live weight or $12 dressed for his hogs, either directly from the market or from the market plus a compensatory payment. It will still be to the producer's advantage to produce these hogs as cheaply as possible and to find the best market he can since the

¹The barley-hog ratio may be expected to confuse farmers somewhat in that it is defined as the number of bushels of No. 3 C. W. barley, basis in store Fort William, less 7 cents per bushel, equal in value to 100 lbs. of B.1 hog at Winnipeg on a live basis. This definition is a carry-over from the time when hogs were sold on a live basis in Canada. Now all hog prices are quoted on the basis of dressed weight. It is of course easy enough to compute the price of live hogs from a given grain price and grain-hog ratio and to then convert the price to a dressed basis by multiplying by four-thirds.
payment will be based on average market price within the region. If
the price of barley or wheat declines the floor price of hogs likewise
declines but so also does the cost of producing them.

We have suggested basing the forward price for hogs on the average
price of grain during the month prior to the sale of the hogs. The
objection might be raised that if a hog producer has paid a higher price
for grain which he bought earlier he is not, therefore, receiving the
guaranteed price for hogs relatively to the price of grain. It will be
noted that the forward price ratio for spring pigs is established for
the period beginning October 1 and ending March 15 of the following year.
Now within this period, on January 15, a new forward price for feed grains
is to be announced. Will not the feeder suffer, if the market price in­
fluenced by the new forward price is lower than the previous market price,
and gain if it is higher, since this market price will determine hog prices?
This objection holds and its weight in reducing price certainty will depend
upon the extent to which market prices for grain change from one forward
pricing period to the next. Without benefit of experiment, the writer is
inclined to believe that such changes in grain prices will be moderate.
If such does not prove true, there seems no valid reason why the ratio
should not be based upon the average market price prevailing over a longer
period of time prior to the sale of the hog.

The question now arises as to why we did not include oats in guar­
anteeing a forward feed-hog ratio. The reason is that the elasticity of
substitution between oats and either barley or wheat as a feed for hogs
is relatively low. With the price ratios which normally prevail between the price of oats and the other feed grains it is not economical to finish hogs on oats alone. If, therefore, hog prices were also based upon an oats-hog ratio and the price of oats declined relatively to the other feed grains in such a way as to lower the guaranteed price for hogs, and yet hogs could not be finished economically on oats, hog producers would be caught in a squeeze. They might still find it economical to feed wheat or barley and yet the price which they would receive for their hogs would be based upon the price of oats. If our storage program succeeds in placing a near average-weather crop of oats on the market each year it seems probable that the demand for oats for feed will cause the price to reflect their feeding value relatively to the other grains. Feeders will continue to use oats to an extent depending upon its relative price just as they will choose between barley and wheat on the basis of relative price.

2. For fall pigs

Although the spring crop of pigs is quantitatively much more important in Canada than the fall pig crop, the latter normally commands a higher price when marketed. This seasonal variation in prices tended to encourage a more even distribution of marketings throughout the year since the higher price for fall pigs would cover a higher cost of producing them.\(^1\)

We suggest that a forward feed-hog price ratio for fall pigs be announced not later than the end of March. This guaranteed forward ratio

\(^1\) The present wholesale ceilings on dressed carcasses do not vary seasonally and therefore make the raising of fall pigs relatively less attractive.
would apply to the period from March 15, of the following year to the succeeding September 30. That is, if a forward feed-hog ratio were to apply to the 1947 fall pig crop, the announcement should be made not later than March 31, 1947, and would apply to hogs marketed from March 15, 1948, to September 30, 1948. The details of the plan would be similar to those suggested for a forward feed-hog ratio for the spring pig crop.

Since we argued that the forward ratio for the spring pig crop should apply to hogs marketed from October 1 to March 15, the forward ratio for the fall crop would result in a forward ratio being in effect at all times. We have suggested that the forward price for spring-farrowed pigs be in effect for 5½ months and that for fall-farrowed pigs for 6½ months. Pigs born in the fall usually require a somewhat longer feeding period to fit them for market than do spring pigs. These periods could of course be altered once some experience has been gained from the operation of the scheme.

There is no reason why the forward feed-hog ratio could not be adjusted seasonally to encourage more regular marketings throughout the year. The ratio might be raised each month for hogs marketed in February through to March 15, a period of low marketings, and similarly from June through September.

The transition from one forward pricing period through to the next would not appear to present any insurmountable difficulties. The transition occurs at periods when marketings are normally light. If market prices are below the forward price, some bunching of marketings
before the new forward prices go into effect might be encountered if the new forward price is below the old. If the new forward price is higher than the old and both exceed the market price producers will tend to hold pigs over into the next period. Should the change in forward prices prove great enough to distort marketings, a system of graduated payments in the last three weeks of the old period or the first three weeks of the new, depending on whether the new forward price is higher or lower than the old, should smooth out marketings over the transition period.

3. Summary

In accordance with our contention in Chapter VI that forward prices should, for best resource use, be established in Canada for coarse grains as well as for wheat we found it necessary to integrate these forward grain prices with an assured price for hogs. Since we are, furthermore, proposing to implement forward grain prices by the use of compensatory payments rather than equating market price to forward price through loan and storage operations, the price of feed grains to feeders will not necessarily be the forward grain price. The problem is complicated by the fact that the production period for livestock is not co-terminus with that for grain. For these reasons it is not possible to announce a forward price for livestock and, at the same time, announce a forward price for feed grains thereby assuring the livestock producer of a minimum price for his livestock and a maximum price for the grain which he feeds.
We have suggested, therefore, a forward feed-hog ratio which will guarantee the hog producer a minimum price for his hogs in terms of his feed grain. The feeder is at liberty to feed those grains which are relatively lower in price and will receive a price for his hogs based upon the price of either barley or wheat in his area, depending upon which is relatively lower. By the use of this device the writer believes it possible to achieve certain advantages which are not possible with some other techniques which have been suggested. These advantages are:

1. It permits the operation of a storage program committed to the placing of an average weather crop on the market by sales and purchases without being committed to the maintenance of a pre-determined market price. This avoids placing the storage agency in the position of having to determine what the prices of grains shall be. Such a function is best left to the market.

2. It permits the announcement of forward prices for livestock in terms of feed grains for periods during which the forward and the market prices of feed grains will change. An important corollary to this point is that forward feed-livestock prices ratios may be announced for periods which do not coincide with the forward pricing period for coarse grains.

B. Forward Prices for Beef Cattle

The length of the production period for beef cattle makes it more difficult to establish forward prices for this product than for hogs.
The commodity too is far from homogeneous. Roughly 10 per cent of the Canadian beef cattle population is carried on specialised range cattle ranches in southern Alberta, southwestern Saskatchewan and the interior valleys of British Columbia. These cattle are sold as long yearlings or long two year olds and either as grass fat cattle for immediate slaughter or as feeders. Whether or not grass cattle are fed depends largely on the degree of finish, the price of feed and the expected price of finished cattle relatively to the price of unfinished or semi-finished cattle.

1. Fed Cattle

Cattle feeders normally fill their feed lots in October or November and they may elect to finish long yearlings, calves, or less frequently, long two-year-olds. These cattle may remain in the feedlots anywhere from two to nine months. The fixing of forward prices for fed cattle should not prove too difficult since the production period will not exceed eleven months. One difficulty depending upon the forward pricing technique adopted may be that the feeding period will normally fall across two forward pricing periods for feed grains.

Suppose a forward price for fed cattle is announced in September, effective for the period December 15 through July 15. This forward price will be specific in terms of grade, location and season. The guaranteed price should increase each month during the period in order to partially "smooth out" marketing, that is to encourage feeders to put cattle on
the market when the supply is normally short.\(^1\) Now when a feeder buys feeder cattle in the fall he will be concerned with at least two factors: (a) the price of the "feeder frame" relatively to the expected price for finished cattle, and (b) the cost of putting on the increase in weight.

A forward price for finished cattle in dollar terms will permit a much greater degree of certainty on the first point. The feeder can compare the market price of feeder cattle at the time he contemplates buying with the guaranteed price of finished cattle at any date up to eleven months hence. Some technological uncertainty remains in that the grade of finished animal which any given feeder may make in a given time and with given feed is somewhat uncertain. To an experienced feeder this element of technological uncertainty is negligible when compared with the degree of price uncertainty which prevails for fed cattle under a free market.

\(^1\)The experience gained under the price control policy which was applied to beef in Canada during the war has some interesting implications bearing upon seasonal variation in floor prices. Ceilings and floors were placed upon beef at the wholesale level and retailers were not allowed to increase their "spread" above that which prevailed during the base period, September 15, to October 11, 1941. Neither ceilings or floors were applied to live cattle. Ceilings and floors were established for seven qualities of beef in each of 15 zones across Canada. On May 27, 1943, seasonal differentials in floor prices were introduced. They were as follows for commercial quality beef in Zone 6 (Southern Ontario):

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Floor Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 27 - August 14/43</td>
<td>19 3/4 cents</td>
</tr>
<tr>
<td>August 16 - September 18/43</td>
<td>19 3/4 cents</td>
</tr>
<tr>
<td>September 20 - December 18/43</td>
<td>17 3/4 cents</td>
</tr>
<tr>
<td>December 20 - February 5/44</td>
<td>18 3/4 cents</td>
</tr>
<tr>
<td>February 7 - March 18/44</td>
<td>18 3/4 cents</td>
</tr>
<tr>
<td>March 20 - April 22/44</td>
<td>19 3/4 cents</td>
</tr>
<tr>
<td>April 24 - forward</td>
<td>19 3/4 cents</td>
</tr>
</tbody>
</table>

On August 21, 1944, a policy of level floor prices throughout the year
Similarly the greatest degree of uncertainty connected with the cost of adding weight to these cattle is the uncertain price for feed grain although some technological uncertainty in rate of gain is also present. To what extent can the feeder be apprized in advance of the price of feed grains which will prevail during the feeding period? The technique suggested for hogs, the setting of a forward feed-livestock ratio, may prove the most suitable for this purpose. One immediate objection to such a plan is that a barley-beef or a wheat-beef ratio is much less familiar than the corresponding ratios for hogs. Such an objection is, of course, superficial; for the most part, farmers know little or nothing of the barley-hog ratio in formal terms although their actions suggest that they pay rather close attention to the price of feed grains when deciding upon the size of their hog enterprise.

A more fundamental objection to this plan, and one which did not obtain in the case of hogs, is that a forward feed-beef ratio does not permit the feeder to compare the spread between the price of feeder cattle and the price of the finished animal. A decline in the price of feed grains might entirely eliminate this spread between the price of feeders and the guaranteed price for finished cattle. If feeders must assume this risk it seems reasonable to suppose that they will require a more favourable feed-beef ratio to induce them to undertake feeding operations on the same scale.

was announced. At the same time the ceiling, which was $1 above the floor, was also made level. Apparently these seasonal differentials were sufficiently high as to interfere with marketings by inducing producers to hold cattle which were ready for market over for a higher price.
The above shortcoming of a forward feed-beef ratio together with the fact that forward prices for fed cattle will not have to be set for more than 12 months in advance, as compared with about 16 months for hogs, should encourage us to seek an alternative technique. If otherwise feasible a forward price in dollar terms will also prove more readily acceptable to cattle feeders since this method avoids the trouble involved in translating a ratio into dollar terms. Would it then be feasible to announce forward prices for finished cattle in terms of dollars per hundred pounds for specified grades by area and date of sale?

The answer to this question depends upon the certainty with which feed grain prices can be made known to the feeder at the time he makes his plans. When the forward price for finished cattle is announced, say in September, the feeder may make arrangements to purchase feeder cattle. A forward price for feed grains will be in effect and will remain unchanged up to January 15. However, if and when the feeder buys grain he will pay the market and not the forward price.

The feeder will not expect any marked change in feed grain prices since he knows that the storage agency stands committed to place a near average-weather crop on the market during the crop year, which will include all of the feeding period. Fluctuations in either domestic or export demand may raise or depress the market price in spite of the average supply. Such a change may be anticipated at the time new forward prices for grains are announced in January since private traders may well
give considerable weight to the pricing agency's judgment of demand and supply conditions; this judgment will be reflected in the new forward price which is fixed at, say, 90 per cent of the expected equilibrium price. In an effort to protect himself the feeder may buy and store his grain if he anticipates that the market price will rise by more than the cost of storage. Or he may take advantage of the futures market to hedge his prospective purchases.¹

Upon comparing these two possible methods of implementing a forward price for fed cattle the writer's judgment would be that a forward price for beef cattle in dollar terms, if accompanied by the operation of a futures market for feed grains, including wheat, is superior to a forward feed-beef ratio. The failure of the latter method to give feeders a basis for judging the relative prices of feeder and fed cattle would still permit a fairly high degree of uncertainty even though the price of finished cattle relatively to grain prices were guaranteed. Many feeders

¹The purchase of a future entitles the holder to take delivery of any one of the contract grades at Fort William/Fort Arthur when the delivery month arrives. But a feeder in Alberta wants wheat in Alberta, not at the Lakehead. However, when he wishes to take delivery there is nothing to prevent him selling his future and buying feed wheat from his local elevator. Since the increase in the price of feed wheat in Alberta will be roughly equal to the increment in the value of the future the feeder will have hedged his purchase of feed wheat. The writer's experience has been that few farmers see in a futures market anything other than a device which permits a would-be gambler to gamble. Every farmer knows that if he buys and holds a future he is gambling. Few would admit that they are gambling when they hold grain in their bins hoping for a price rise. Similarly a feeder is gambling on the price of feed grain when he buys feeder cattle and plans to buy his feed as he goes along.
undertake feeding cattle even though the cost, exclusive of return to the operator, of adding additional weight to the feeder cattle is no more than the market price of this increased weight. They are counting in addition upon an increase in the selling price per pound of finished cattle over the price per pound which they paid for feeders. If this price differential is one important determinant of the volume of cattle to be fed, it should be made known to the prospective feeder while he is still planning his feeding operations.

2. **Feeder and grass-fat slaughter cattle**

The length of the production period makes it extremely difficult for the forward pricing agency to forecast accurately the equilibrium price of feeder or grass-fat cattle prior to the time producers must make their breeding plans. Cows are usually bred from July to September. Calves are born the following April, May and June. A few of these calves may be placed in feed lots that same fall, some of them held over for another year and perhaps a half held through another year and sold in the fall as long two-year olds. Now if forward prices were to be announced to producers in time to influence breeding plans, these prices would have to be announced at least 16 months in advance for those selling calves, 28 months for producers selling long yearlings and 40 months for producers selling long two-year olds. With the possible exception of calves, which are relatively unimportant in the overall picture, the writer believes that equilibrium prices for feeder and
grass fat cattle cannot be anticipated with any significant degree of accuracy as far ahead as would be required.

The announcement of forward prices for fed cattle will have an effect upon the market prices of feeder cattle and may either raise or lower them depending upon the degree to which the forecast of the forward pricing agency harmonizes with the expectations of the trade. Since there is usually a fairly constant spread between the prices of the various grades of cattle, any increase in this spread through the fixing of a forward price for fed cattle will likely be offset by a rise in the market price of feeder cattle as feeders bid for them. The knowledge of this relationship may cause the organised producers of grass cattle to attempt to bring pressure to bear on the pricing agency to set the price of finished cattle above the equilibrium level.

Should the lack of a forward price for grass cattle give rise to the well known cobweb effect it might be desirable to announce long term forward prices for feeders at a relatively low percentage of the expected price even though the latter could not be accurately anticipated so far in advance. A forward price of 65 per cent of the expected price might have an important effect in deterring those "in-and-outers" afflicted with undue pessimism from liquidating their breeding herd when prices were temporarily low. Such a limited guarantee should not entail the making of any large transfer payments to cattle producers.

It is difficult to appraise the effect upon the production of feeder cattle which the lack of a forward price for this product, or a forward
price which is low relatively to the most probable price, will have.
The outcome will likely depend upon the degree to which other products,
for which a forward price has been announced, compete with feeder cattle
for resources which may be used for the production of either. Resources
used for producing feeder cattle might be used to produce hogs, dairy
products, mutton or wool. This is particularly true on farms in the
park belt of the Prairie Provinces or in Eastern Canada. Most farms in
the range cattle areas of Western Canada will be used to produce grass
cattle, irrespective of the relative price of other products. A few
such units might shift as between cattle and sheep. On the short grass
plains farmers frequently vary the size of their hog enterprises without
making any concomitant adjustment in the size of other enterprises.
Farmers in Western Canada reduced their hog enterprises very substantially
in 1943, yet there is little indication that they replaced these hogs
with cattle. Rather their willingness to produce hogs appears to be a
function not only of the feed-hog ratio but of their own net incomes.

A priori it might be reasoned that the added certainty resulting from
forward prices for hogs will cause some shift away from the production of
feeder cattle in the park belt and in Eastern Canada. To attempt to estimate
the extent of such a shift is futile without empirical evidence. That there
is some elasticity of substitution between the resources which are employed
to produce hogs and feeder cattle we know; the degree of such substitut-
ability we do not know.

C. Forward Prices for Sheep, Lambs and Wool

The problems likely to be encountered in establishing forward prices
for sheep and lambs are comparable to those met with in the case of feeder and fed cattle. A forward price for fed lambs would offer little difficulty; a forward price for sheep would not appear to be feasible because of the length of the production period. A forward price for wool if considered desirable might be announced prior to the culling of flocks in the fall of the year. Since Canada produces only about 10 per cent of her wool consumption the estimation of a forward price for wool some 10 months in advance might be subject to a considerable degree of error. Since income from the sale of sheep, lambs and wool amounts to less than 1 per cent of the total farm cash income for the Dominion, these products might well be omitted from a forward pricing program.

D. Forward Prices for Dairy Products

The output of milk differs from most other farm products in that it is continuous throughout the year although varying markedly with the season. Fluid sales tend to be relatively constant and the greatest variation occurs in the production of butter, cheese, concentrated and dried milk. Forward prices might conceivably be applied to total milk sales or to the products into which it is manufactured. The second alternative might serve to control both the volume of output and the allocation of milk among competing products.

Fluid milk prices have been controlled in eight provinces by provincial milk control boards. British Columbia is the exception. In those provinces controlling milk prices, other than Ontario and Quebec, jurisdiction is only exercised in specified urban communities—but fluid
milk prices appear to be relatively stable in all markets. Forward prices would not seem to offer any advantages since prices for this commodity are already known in advance with a reasonable degree of certainty. The price of fluid milk typically differs from market to market and there are thousands of local markets. The difficulties encountered in administering forward prices for fluid milk would appear to nullify any gains to be derived from such a plan.

Forward prices for manufactured milk products, other than butter, have in effect been guaranteed during the war years by forward sales contracts with Great Britain. In addition the supplies on the domestic market were sufficiently limited relatively to the demand to keep prices at ceiling levels. Subsidies have also been paid to producers through the agency of the Agricultural Food Board on cheese milk, milk for concentration and drying, on fluid milk delivered to processors and on butterfat used in the manufacture of creamery butter.¹ Most of such subsidies were removed during 1946 and the government has expressed its intention of removing them all as the supply catches up with demand.² In most instances these subsidies have been paid through the processing or distributing agency and were incorporated in the price paid to farmers. The processing firm then submitted a claim to the Agricultural Food Board, and were in turn reimbursed.


One of the most effective means of administering forward prices for dairy products would be the establishment of such forward prices on the manufactured product—i.e., a forward price for butter, cheese and concentrated milk products. Such prices could be announced for a twelve month period in advance, varied seasonally and by area and implemented by means of compensatory payments. The adoption of this device would prove simpler than attempting to establish forward prices for cheese milk, butterfat and milk purchased for concentration. This technique would also avoid the necessity of purchase and storage by the recently established Dairy Products for the purpose of supporting price.

One possible objection which might be raised to the establishment of forward prices on the basis of the processed commodity, rather than on the original farm product, would be that any compensatory payment made might not be passed back to the farmer. The forward price is intended to guarantee a specific price to the farmer not to the processor. The pertinent question is, therefore, whether a forward price for the processed commodity could be translated into a specific price for milk. This question would appear to have two closely related implications: (1) What part of the differential between the market price and the forward price, paid to the processor as a compensatory payment, would be passed back to the milk producer and what part would be absorbed by the processor? (2) Could a forward price of, say, 20 cents a pound for cheddar cheese be readily translated by the producer into a forward price for cheese milk in any specific area?
A possible solution to this first question would be simply to make the payment on the basis of a record of purchases submitted by the processing agency. In this way farmers would not have to submit claims, supported by sales slips, and the processing agency need have nothing further to do with the distribution of compensatory payments since checks could be mailed out to producers by the pricing agency. If the cheese factory sold cheese at an average price of 18 cents a pound during a period in which the forward price was 20 cents a pound, a compensatory payment of 2 cents a pound would be pro-rated among producers who had delivered milk during that period. If we assume that about 10 pounds of milk would be required to make a pound of cheese, the payment would be about 20 cents per hundredweight for milk delivered. However, this ratio of output to input would not have to be determined explicitly since the total payment would simply be divided by the number of pounds of milk marketed and distributed to patrons accordingly.

As far as the second point, the translation of forward cheese prices into milk prices, is concerned, if the forward price for cheese were announced in terms of grade, location and season, producers could translate this price into the approximate price for cheese milk. To do this exactly would necessitate knowing the processing margin normally retained by the cheese factory. If, for example, a price of 20 cents per pound for cheddar cheese, f.o.b. factory, "normally" nets the producer of cheese milk $1.80 per hundredweight, and this fact is known to him, he would have no difficulty in translating a forward price for cheese for his own area into terms of cheese milk.
If the market price was below the forward price and a compensatory payment was made, the total price to the producer, including government payment, would be the same as if the market price were equal to the forward price, providing the processors' margin per pound of cheese does not vary with the price of cheese. Thus if the forward price for cheese were 25 cents a pound and the market price 20 cents, the producer of cheese milk would receive $1.80 per hundredweight from the market, and in addition, 5 cents per every 10 pounds of milk delivered, or a compensatory payment of 50 cents per hundredweight. His total payment would thus be $2.30 per hundredweight, just as it would be if the market price for cheese were 25 cents per pound.

Actually, of course, this assumed processors' margin of 2 cents on each pound of cheese produced will vary with the price level, with the size of plant and with the degree of competition. The only point which we wish to establish is that processors' margins do not vary enough to prevent milk producers from translating forward cheese prices into cheese milk prices. A 1 cent difference in processing margins on cheese will not make a significant difference in the degree of price certainty for milk producers when cheese prices are at or above the 20 cent level.

We have traced through in some detail the operation of a suggested plan by which, if forward prices are established for cheese, any deficit of market prices below forward prices may be made up to the producers of cheese milk. Butterfat and milk for concentration are amenable to similar methods of treatment and we will not, for that reason, concern ourselves with the details here.
The question arises as to why we should announce forward prices in terms of the final product, in this case cheese, butter and concentrated milk products, rather than in terms of the farm commodity, cheese milk, butterfat or milk for concentration. There is no conclusive argument on this point; it is rather a matter of selecting the method which offers the greatest administrative simplicity. As in our previous discussion of forward prices it is intended that the forward price shall be an equilibrium price, that is, that price which will move the quantity of product produced into consumption during the forward pricing period. Moreover we are concerned that events, ex post, may be used as a criterion of the accuracy of the pricing agency in fixing forward prices. To do so gives us a benchmark against which the performance of the pricing agency may be judged. Such a benchmark could prove important in checking the effects of excessive pressure exerted by the spokesmen for particular commodity groups.

The forward pricing agency will be confronted with the problem of establishing forward prices which will call forth that output of each product which will move into consumption during the pricing period at a market price closely approximating the forward price. If the forward price for one milk product is high, relatively to the others, it will divert more milk to that particular use than consumers desire. As a result the market price for this over-valued product will be low, resources will have been used in a less-than-optimum way and larger transfer payments will be made to farmers.
The existence of organized markets and established grades for the processed commodities permit a ready comparison of market and forward prices. The lack of such markets and grades for milk itself makes such a comparison much more difficult. The determination of average cheese or butter prices in various areas should prove relatively simple; the determination of average cheese milk or butterfat prices relatively more difficult.

E. Forward Prices for Eggs and Poultry

Owing to the relatively short time required to build up a laying flock, as well as the possibility of increasing egg production from existing flocks by better feeding and care, the output of eggs can be changed substantially within a twelve month period. Because of an even shorter production period for poultry meat, output can be changed greatly within less than a year. This relative ease with which output can be changed, together with the nature of the industry which permits firms with small capital resources to enter, might cause marked fluctuations in output.

The suitability of poultry and egg production as an enterprise for part time farmers, either for those who have retired or those living on small holdings and working at urban employment, may result in a relatively large output of these products. While price policy alone neither should nor will raise the supply price, many of these producers may base their production plans upon an expected price which is not justified by supply
and demand conditions. For this reason forward prices for eggs and poultry may yield greater returns in terms of better resource use than the relatively small proportion of total cash income contributed by them would indicate.¹

An increasing proportion of the chickens produced are now bought as day old chicks from commercial hatcheries. The bulk of such sales occur in March, April and May with some earlier and some later. Few pullets are laying prior to October. It would appear, therefore, that if a forward price for eggs could be announced in January effective the first of the following October that a high degree of price certainty would be assured to egg producers. This forward price should be effective for a 12 month period, i.e., from October through to October. Egg producers would have two opportunities to adjust their output to the announced price, first in the number of pullets raised and secondly in the number of old hens and pullets of poor conformation to be culled out in the fall of the year.

There is normally a marked seasonal variation in the price of eggs, with low prices prevailing in April, May and June, then rising to a peak in late October or early November and declining to an intermediate level as the new crop of pullets begins to lay. This seasonal variation would suggest a forward price which also varies seasonally in order to encourage

¹Less than 10 per cent of Canadian farmers' gross cash farm income is normally derived from the sale of eggs and poultry.
the output of eggs during periods of higher prices and relatively lower production. Storage operations during the spring months and an outward movement of stored eggs in the early winter months contribute to the smoothing out of prices. We are not concerned here with the application of forward prices to stored eggs since this operation is not handled by farmers; however, since forward prices for eggs are an estimate of expected market prices, these announced prices should prove helpful to firms conducting storage operations, since they are a forecast of market prices for fresh eggs.

Although commercial egg producers are concerned with the expected prices of feed grains as well as those for eggs, the announcement of forward prices in terms of a feed-egg ratio does not seem practical. The rations fed to poultry differ widely, varying from grain screenings, through millfeeds, wheat, oats and barley to commercial laying mashes containing these various constituents and others in varying proportions. The announcement of a forward egg price as a multiple of some standard poultry ration would seem too difficult for ready translation into egg prices by egg producers. A storage program for wheat and feed grains will probably ensure sufficient price stability to these feeds to permit the effective application of a forward egg price in dollar terms.

Since egg prices must be announced for a period beginning some 9 months from the date of announcement and effective through a 12 month period ending 21 months from the date of announcement, some difficulty may be experienced in accurately forecasting prices for a period this
far in advance. The domestic demand for eggs will depend upon the relative prices of meats and upon the level of national income. The export demand may prove more difficult to forecast. Prior to the war Canada exported less than 1 per cent of her total egg output.¹ In 1946 and again in 1947 the British egg contract calls for 85 million dozen, or nearly 25 per cent of expected production in each of these years. As meat supplies catch up with demand this export market will undoubtedly shrink; if Canada continues to negotiate forward contracts at specified minimum prices, the problem of predicting export demand will assume very modest proportions.

The transition from one forward pricing period to the next offers relatively little difficulty with a perishable product such as eggs. If the forward price exceeds the market price and declines there is no inducement for producers to hold eggs from one period to the next. If the converse case obtains and forward prices increase, any attempt to hold eggs over for any considerable period will defeat its own end since the loss in grade will more than offset the increase in price. Little or no interference with the marketing process will then be occasioned by the transition from one forward pricing period to the next.

The same general principles apply to the establishment of forward prices for poultry as for eggs. If a forward price is to be announced, it too should be made known in January but should go into effect for a 12 month period. The administrative difficulties which will be encountered

with poultry promise to be somewhat greater than in the case of eggs. Grades of poultry are less rigidly standardized although some progress is being made toward more uniform standards. In fixing forward prices for poultry products at anticipated equilibrium levels the pricing agency must pay close attention to the expected market price for red meats since these are close substitutes to the consumer. From the standpoint of the producer, however, it is doubtful if poultry competes to any marked extent for the use of any agricultural resources other than grain. For this reason the announcement of forward prices for poultry need not be co-incident with the announcement of forward prices for other farm products.

F. A Note on Perishable Plant Products

So far we have been concerned with forward prices for two types of products:

(a) Those whose output is not, within limits, subject to human control but which are durable and therefore storable; this group includes the grains. The output of grain is subject to control in that such inputs as acreage, fertilizer, cultivation and crop rotation can be controlled; the output is uncontrollable to the extent of variation in yield attributable to weather conditions. We proposed to stabilize market supplies by means of storage operations and to announce minimum forward prices.

Sale of poultry by grade through retail channels is now required in some seven Canadian cities and is being extended to other areas "in accordance with public demand".
(b) Those products whose output is, to a much larger extent, subject to human control but which either cannot be stored or can be stored in processed form only, at a relatively high cost and for fairly short periods of time. This group includes the meat animals and such livestock products as fluid milk, cheese, butter and concentrated milk products. For these commodities we proposed to "control" output through the medium of guaranteed forward prices or a forward feed-price ratio in the case of hogs. It is intended to permit these commodities to flow into consumption at a free market price and, where necessary, to implement the forward price by means of direct payments to farmers equal to the difference between the guaranteed forward price and the average market price received by the producer.

There is now a third type of Canadian farm product which we might label as "perishable plant products" to distinguish them from the durable grains and the perishable livestock products. This third type includes potatoes and vegetables, small fruits and the tree fruits. The output of all of these is sensitive to variations in weather conditions and precludes control of output and their supply cannot be regularised over time by storage operations.

If a forward price, fixed at the expected equilibrium level for an average sized crop is guaranteed for these products and an above average crop is harvested, growers will receive a large transfer payment since the market price will likely be low. If they harvest a small crop the market price will likely exceed the forward price by a substantial margin. If no forward price is announced and the demand for these products proves
fairly inelastic, a small crop will yield larger total returns to growers than an average or better crop while a large crop will yield smaller than average total returns.

In order to avoid making heavy transfer payments to farmers producing perishable plant products it has been suggested that a forward price schedule, with the guaranteed price varying inversely with the size of the crop in such a way as to stabilise growers' aggregate gross cash income from different sized crops be announced. This device would not stabilise the gross income of individual producers from the sale of these crops unless yields were uniform throughout the producing area. This latter condition does not, of course, obtain; the extent of the variation in individual farm yields from the average would determine the year-to-year fluctuations in gross income from the sale of these crops for particular producers. In order to stabilise the individual farmer's cash receipts from grain sales we suggested a scheme of crop insurance. Whether crop insurance for perishable plant products is workable from an economic standpoint, and whether the fluctuations in the output of these crops on individual farms are sufficiently great to warrant the application of crop insurance to them cannot be said in the absence of a detailed examination of this industry.

The omission of forward prices for tree fruits would not likely have any markedly adverse effects upon resource allocation since tree fruits do not closely compete with other products for the use of farm

resources. The production period for tree fruits is very long. Year to year price fluctuations will not induce any marked change in output of these products. It would be impossible to announce a forward price if the production period is construed as meaning the length of time required to bring newly planted trees into production.

Forward prices for small fruits, vegetables and potatoes, on the other hand, might lower the supply price of these commodities by mitigating the uneconomic effects of capital rationing and improving resource use by permitting farmers to choose the prospectively more profitable of competing crops. For those crops such as potatoes and vegetables, a forward price schedule varying inversely with yield, would in effect guarantee an average gross income per acre for all acres seeded. It might seem desirable to break such a schedule down by regions; otherwise British Columbian potato producers, for example, might receive both a small crop and a low price if New Brunswick happened to produce a large crop. This, however, is only an extension of the argument that the output on individual farms will differ since the market price will be determined by the total supply and will again depend for solution upon some form of crop insurance. In the opinion of the writer, the case for forward prices for perishable plant products rests on much less firm foundations than that for grains and livestock products. Accordingly detailed research must necessarily precede any recommendation for the application of forward prices to these products.
VIII. THE LEVEL AND STABILITY OF FARM INCOME

Throughout Chapters VI and VII we have been concerned with techniques designed to improve the use of agricultural resources. The principle which we have been following is that of making the relevant future prices of as many factors and products as possible known to the farmer at the time he is planning his output. Given a knowledge of the price structure which will prevail, the farm operator is then in a better position to organize his enterprises as to equate the value of the marginal products of the factors which he employs to the respective market prices of those factors. Forward prices, to be implemented by the use of compensatory payments, together with a storage program for grains, were suggested as appropriate techniques for improving the allocation of farm resources. In each case the forward price was a forecast of the equilibrium market price and the use of compensatory payments was intended to eliminate the need for supporting market prices.

In attacking the resource problem we have paid some attention to the effects of various possible techniques upon the size and distribution of income among farm families. Upon several occasions the point has been made that it is desirable to stabilize not only the level of net farm income to all farm families, but, more importantly, to stabilize the year-to-year level of income to the individual farmer. Furthermore, we have

\[\text{\footnotesize 1}^{\text{\footnotesize The resource problem may be defined as any allocation of resources which causes a divergence between the price of a factor and its marginal value product where the latter is not smaller than any alternative marginal value product which is being produced with the factor.}\]
been assuming a fairly high level of employment in the economy as a whole. It is now incumbent upon us to remove this assumption and to attempt to determine how the techniques which we have already suggested as a means of improving resource use will perform under conditions of unemployment and depressed prices for farm products. Once the assumption of a high level of employment is abandoned we find that the degree of income certainty confronting farmers over the longer run is greatly reduced. In actual practice, therefore, the announcing of forward prices for one production period in advance will not provide a sufficient degree of price certainty to eliminate capital rationing and the uneconomic substitution of labour for machinery in an effort to avoid fixed commitments. Forward prices for one production period will not ensure stability of farm income over a longer period. Farmers, fearing a depression, may hesitate to make capital commitments to produce future goods whose price they do not know. Some means of imparting a greater degree of stability to farm income, therefore, appears desirable.1 Such a degree of stability can probably best be secured by guaranteeing a minimum level of farm income to the individual farmer during periods of depressed prices.

1 Stability of farm income implies certainty regarding the size of the future income stream, although the converse does not hold. A fluctuating future income stream might be known with certainty. If the individual producer knew with certainty what his future net income stream would be, he could adjust his consumption expenditures and capital investments in such a way as to offset these fluctuations. In a free enterprise economy there does not appear to be any suitable method whereby a fluctuating future income stream can be made known to the producer. Means by which his income may be stabilised are therefore to be sought.
It is fairly safe to state that agricultural interests have supported parity price schemes, not for any effects which such a structure might be thought to have upon the use of resources, but for its income effects. As we have noted in Chapter IV, Canadian farmers are extremely vulnerable to fluctuations in the level of economic activity. In an effort to protect themselves against the periodic prevalence of low prices for their products, Canadian farmers are increasing their demands either for a price for their products with a purchasing power not lower than prevailed in some historic period or a fixed minimum share of the national income. Either of these demands represents an effort upon the part of farmers to improve their ability to weather depressions relatively to that possessed by other industries. To achieve this minimum level of income during periods of depression farm organizations have, so far, largely focused their attention upon minimum prices for farm products. We have condemned parity price and parity income schemes as being inadequate and inimical to the best use of resources and to economic progress. Can we offer anything better to take their place?

It should be emphasized at the outset that we are not endeavouring to devise a substitute for a high level of employment. Given full employ-

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1 According to a press report carried in the Western Producer of November 21, 1946, "Delegates to the 22nd annual meeting of the Saskatchewan Wheat Pool passed a resolution urging their Board of Directors to continue to press for agricultural prices that would return to farmers their fair share of the national income." Another resolution, calling for permanent closing of the Winnipeg Grain Exchange, received unanimous endorsement.
ment in Canada and a reasonable degree of free trade in world markets, there will be little need for measures to support the overall level of farm income. The use of fiscal-monetary measures, supplemented by a public works program, may prove adequate to the maintenance of a fairly high level of employment in the industrial sector of the economy, providing the export demand for farm products does not deteriorate. If exports fall off, Canada may find it necessary to provide some kind of floor under farm incomes since a high proportion of her agricultural output is exported. A high level of domestic employment will not provide the same assurance of markets for farm products in Canada as it would, for example, in the United States where a much smaller proportion of total farm output is exported. But the chief assurance of an adequate income level for people in agriculture must come from a market for their product at home or abroad. The maintenance of conditions ensuring the existence of such markets is beyond the scope of this thesis.

We are concerned here with devising a second line of defence to be pressed into service in the event the first is penetrated. The point cannot be overemphasized, however, that it is a second line of defence and, as such, is not intended either to replace measures intended to achieve a high level of employment and export trade or as a means of supplementing farm income irrespective of the level of employment off farms.
A. The Determinants of the Level of Farm Income

It is apparent that in discussing the level and stability of farm income we are dealing with two distinct concepts. We can of course conceive of a stream of farm receipts which is stable over time but which may, within limits, be fixed at any given level. Income receivers are concerned with both the level and stability of their income streams but, for purposes of analysis, the two concepts should be distinguished. If the incomes of persons on farms are to be supported, the question immediately presents itself as to the level at which such incomes should be supported. This in turn suggests an examination of the factors which determine the level of farm income in a competitive price economy.

Under such a system the payments received by factors would be equal to their marginal value products. The productivity of labour in agriculture depends upon the quantity and quality of the other factors of production with which it is combined and upon the health, skill and managerial ability of farm people. These latter factors, in turn, depend upon the investment which has been made in the human agent. The returns received by farm people also depend upon labour's ability to move to other regions within agriculture or to industries where the marginal value product is higher. Since the people engaged in agriculture raise more children than can economically find employment in that industry, the returns to farm people must, in the absence of political intervention, always be lower than those receivable elsewhere. This lower relative
return to labour in agriculture may be accentuated by the adoption of labour saving devices, that is, technological improvements which increase the marginal productivity of capital more than they do the marginal productivity of labour.\textsuperscript{1} Similarly a low income elasticity of the demand for food indicates that, as consumers' incomes increase, a smaller proportion of that income will be spent for food. The secular trend in the demand for food will not, therefore, increase as rapidly as the demand for other products. This differential in the rate of growth of agriculture relatively to other industries points to the necessity of a more or less continuous movement of labour out of agriculture.\textsuperscript{2} The size of the differential in wage rates necessary to move labour out of agriculture will depend upon the cost of movement; the lower the cost of movement the smaller the wage difference necessary to achieve a distribution of population which will equalize labour's marginal value product within agriculture and as between agriculture and other sectors of the economy.

We are in effect, therefore, depending upon the operation of the market for the distribution of income. This is not to say that society should not attempt to influence the distribution of income; indeed it both should and does. The progressive tax structure on incomes and inheritances, the payment of family allowances, the extension of public services to all citizens irrespective of their level of income, the levying of


\textsuperscript{2}Cf. T. W. Schultz. \textit{Agriculture in an Unstable Economy.} p. 60.
excise and luxury taxes, the erection of tariff structures and the control of foreign exchange rates all affect the distribution of incomes among members of the economic community. Nevertheless, within this framework of controls, the price system distributes income to resource owners on the basis of the quantity and the productivity of the factors of production which they own. This pattern is modified by the existence of more or less extensive elements of imperfect competition where owners of factors do not take the price as given but are able to determine it, within limits, either by varying the quantity of factor offered for sale, or, by bargaining for a price over the threat of withholding the entire supply of the factor from the market, as is the practice of labour unions.

The payment of factors according to their marginal productivity suggests that one way of improving the incomes of farm people would be to enhance their productivity. Investment in farm young people through the provision of educational facilities, health services, better nutrition, and housing will contribute toward this end. Unfortunately, where a major part of the cost of such services must be borne by the individual family, those farm families in the lower income brackets will not be able to make the investments in their children which are necessary if the latter are in turn to increase their earnings. This means that children raised on low income farms will tend to earn a relatively low return because of their low productivity. The recently established family allowances program in Canada will serve to partially reimburse farmers for the expense involved in raising more children than can find employment at competitive rates of pay in the agricultural industry. This analysis would suggest
that an effective means of increasing farm income in the long run would be to adopt measures which will increase the productivity of those engaged in agriculture, and at the same time, training farm youth for types of employment which they might expect to receive off the farm; in general, doing everything possible to lower the cost of movement for farm people who wish to transfer into other occupations.

In the last two paragraphs we have assumed the existence of a sufficiently high level of employment as to ensure employment to farm people seeking off-farm jobs. If such employment opportunities do not exist there will not only be little or no movement of people off farms but there is likely to be a movement in the opposite direction. This is a familiar occurrence during periods of unemployment as people, who have left the farms, return since they can live more cheaply there than in the cities and produce a part, at least, of their own food supplies. Such a movement tends to depress the returns of farm people even further as the marginal productivity of labour falls with an increase in its employment. This tendency for labour to move back to the farms during periods of unemployment serves to emphasize the extreme dependence of people in agriculture upon a high level of employment in the non-farm sectors of the economy.

Not only do the per capita earnings of people in agriculture tend to be lower than those of people in the non-farm sectors of the economy.

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1Comparisons of the net per capita incomes of persons in agriculture with those in other industries are both difficult and open to misinterpretation. Hope has estimated that, from 1939-42, persons living on farms in Canada constituted 27.5 per cent of the total population, yet received only 18.5 per cent of the national income. Although the writer feels that the methods used in deriving this estimate may be criticised nevertheless the general conclusion that people on farms receive a less than proportionate share of the national income is inescapable. See above p. 26, footnote 1.
but there is also a wide dispersion in the distribution of income to people within agriculture. Many farm operators possess resources which are inadequate to permit them to earn a standard of living which is acceptable from a social point of view. They need help to secure control over sufficient capital equipment to permit an acceptable standard of living. Since many of these people are not commercial farmers, raising the prices of farm products has little effect upon their incomes. Other measures, such as help to move to a better area, the extension of long term credit to enable them to enlarge their farms and to purchase livestock and machinery, together with technical advice on the best methods to use, are required. These measures are essential but largely beyond the province of price policy.

But, apart from subsistence and part time farmers, there remain nearly two thirds of the farmers in Canada whose real income may fall precipitously to low levels in the event of unemployment in the domestic economy or a loss of export markets. If measures are to be adopted to place a floor under their income, the problem arises as to the general level at which this floor should be placed, the length of time during which it should be operative and the means which should be used to implement such a minimum level of income. We now propose to attempt to discover some criteria which may prove helpful in reaching a decision on these three points.

1So far very little statistical information is available on the distribution of income within agriculture. The Canadian Wheat Board, as the sole handling agency for grains since 1943, has a record of grain sales for each permit holder in the Prairie Provinces. There is no record of sales of livestock and livestock products off farms. The increasing number of income tax returns now being filled in will provide a picture of income distribution among those farm operators having a net taxable income. So far no information from this source regarding the distribution of income among farmers has been published.
B. The Level and Duration of Income Supports

In discussing the concept of income parity we condemned schemes which would guarantee any section of the population a fixed minimum per capita share of the national income because of the unfavourable effect of such guarantees upon the allocation of resources and the consequent obstruction which they offered to economic progress.¹

These objections still apply. We are not seeking a plan which will guarantee farmers an equal per capita share of the national income, nor even a per capita share equal to that which has prevailed in some past period, as the Norton-Working proposal would do. What we want essentially is to guarantee to farmers a minimum level of gross income during depressions which will permit them to hold their business together, to avoid heavy disinvestment in material and human resources and to maintain an acceptable minimum standard of living.² Moreover, we want such a guarantee to become effective only during periods of depression. If there is not

¹See above p. 63.

²Such an acceptable minimum standard of living does not lend itself to precise definition. It is a value judgment which varies with the wealth of a society, with its stage of development and with time. The writer believes that the Canadian people are coming closer to the point of insistence upon certain minimum objective standards of human welfare in terms of nutrition, medical services, educational opportunities and housing for all citizens. To the extent that these services are provided by the government they will presumably be made available irrespective of the level of employment or the income level of the recipients. The Dominion Government in seeking a re-organisation of federal and provincial revenues and responsibilities proposed a health insurance program for all citizens. (See Proposals of the Government of Canada to the Dominion- Provincial Conference on Reconstruction. August 1945. p. 27) The minimum level of income guaranteed to farmers during a depression should take into account the services provided through social security programs.
sufficient demand for a product, even with a high level of employment, to enable those producing it to meet costs, we do not wish to subsidize such producers to continue producing this product. The market must still decide what goods are to be produced and by which firms; what we wish to avoid is a wholesale excision of reasonably efficient firms and the consequent depressed standard of living and capital losses which occur during a period of depressed prices resulting from lack of purchasing power in the hands of the consumers.

In recent years an intensive search has been carried on for a formula which will guarantee "equality for agriculture" or a "fair share of the national income to agriculture". One economist has described this search for the Holy Grail in these terms:

One rather widely accepted formula for a desired end is that agriculture be rewarded in proportion to its contribution to the national welfare. Farmers should insist on as much. They cannot legitimately ask for more. The difficulty with such a demand is the near impossibility of securing agreement on an accurate measure of farm contributions to the national welfare, or an accurate measure of rewards for such contributions. This difficulty has led to similar demands stated in another way: there should be a balance between the rewards, to agriculture and those to other large economic groups.

The writer believes that the approach to securing "equality for agriculture" should be in the direction of enforcing non-discriminatory rules of the game for all firms, irrespective of the industry within which they are located. Stabilization of the income of firms in agriculture, thereby ironing out severe ups and downs, is desirable. To raise or lower the absolute or relative shares of the factors of prod-

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Production should be left to the operation of the market and to government measures designed to secure a better allocation of resources. Such stabilization measures, insofar as they fall within the province of price policy, we have already outlined. Other measures appropriate to the movement of factors to firms where their marginal value product is highest are desirable. Labour will need to move out of agriculture; capital to move in.

On the income side the emphasis should be placed on the maintenance of certain minimum objective standards for all families, farm and non-farm alike. The maintenance of such minimum standards is not of course a cyclical problem and should be pursued irrespective of the level of employment. However, the provision of such minimum standards is not enough during periods of depression for those families whose income falls to very low levels because of the collapse of the prices of the products which they produce and the factors which they own. We are concerned with finding means to maintain a minimum level of farm income during such periods. Our pre-occupation with the agricultural industry is attributable to the necessity for a division of labour rather than to any implied judgment that income supports are more essential here than elsewhere in the economy.

Schults and Johnson, as we have noted, propose to support farm income by guaranteeing a price floor for farm products. This price

1 The necessary separation between the means appropriate to a solution of the resource and the income problems is forcibly emphasized in a recent article by T. W. Schults, Production and Welfare Objectives for American Agriculture, Journal of Farm Econ. 23: 444-457. 1946. Schults here makes some suggestions as to how agricultural statistics should be organized in order to permit an evaluation of the way in which both resources and incomes are distributed.
floor is to be fixed at a pre-determined percentage of the pre-depression price and implemented by means of direct compensatory payments. They recognize that this scheme will be regressive in that farmers with the larger incomes will receive the higher payments while subsistence or near-subsistence farmers on the lower end of the scale will receive small payments or none at all since they sell but little of what they produce. Johnson proposes to reduce the regressiveness of this method of making payments by paying a flat sum, based upon the number of persons in the farm family resident on the farm, to those farm families whose receipts from compensatory payments would be less than this minimum amount.¹

The proposal advanced by Schults offers certain marked advantages; it permits the establishment of a system of floor prices thereby assuring a more stable aggregate farm income, and for those crops and areas where yields vary but little or where a crop insurance program is in effect, a more stable income for the individual farm. The scheme is dynamic, rather than static, in that it permits the market to readjust the support prices during inter-depression periods and also permits the market to channel products into consumption at all times.

The plan has, as we have seen, certain disadvantages. It is regressive; it may maintain during a long depression a set of relative prices which are out of date in terms of supply and demand; if applied to feed grains it discriminates in favour of the specialized feeder; finally it may result in the transfer of an excessive volume of real income

to farmers during a depression if the prices of goods and services purchased by farmers declines substantially. If applied to products entering into export trade the Schultz plan, by tying payments intended to maintain farm income to prices, might be construed by other exporting countries as a production subsidy. If Canada, for example, supplying roughly 40 per cent of total wheat exports, is looked upon by her competitors as subsidizing the production of wheat, it may lead to competitive export subsidization which is equivalent in its effects to an outright gift to importing countries. Actually it is doubtful if the support of wheat prices during a depression would result in any greater output of wheat than if prices are permitted to drop, provided all other prices are supported to the same relative extent as those of wheat, as the Schultz plan suggests. As wheat prices declined during the thirties the acreage seeded increased, indicating an effort on the part of farmers to offset lower prices by increasing their output.  

If in the future the prices of Canadian farm products decline as rapidly from a peak to a trough as they did in 1929-30 the guarantee of a floor price at, say 75 per cent of the predepression level, will permit large and efficient farm units to continue to enjoy a high level of net income.  

Other citizens of the community may object to the maintenance of a high level of net farm income to such operators through the use of transfer payments. They may be inclined to argue that such

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1 See Table 16, p. 121.

2 The average price received by farmers for wheat in the crop year 1929-30 was $1.05 per bushel; in 1930-31 it was $0.49 per bushel.
treatment is discriminatory and that the principle adopted should be rather to guarantee a level of income sufficiently high to permit operators to cover variable and fixed expenses and at the same time to maintain a minimum standard of living. If such a plan could be made to work it would permit farmers to hold their business together during periods of depressed prices, to meet fixed commitments, keep buildings and machinery in repair and, once the prices of farm products improved, their rising net income would automatically terminate government payments. Because of the shortcomings which we have attributed to other proposals and the conviction that, good or bad, some means will be found of placing a floor under the income receipts of persons on farms during periods of depression, we propose to devote the latter half of this chapter to the elaboration of yet another means of maintaining a minimum level of farm income.

C. A Suggested Method of Supporting Farm Income

In Chapters VI and VII we attempted to apply certain techniques to the Canadian economy which would result in a greater degree of price certainty to producers and would permit of a more regular output of some agricultural products. These techniques were based upon the assumed existence of a system of free market prices which would perform the two related functions of allocating resources and of distributing income within a framework of government controls. We proposed to increase the
stability of market prices by eliminating a large part of the fluctuations in supply of durable farm products and to make minimum forward prices known to farmers in advance. These devices may be expected to increase farm income since by apprising farmers of future prices they will permit them to so allocate the resources at their disposal as to maximize net returns. Nevertheless these techniques were intended primarily to increase the total net output of the agricultural industry by improving the allocation of resources. Although they will, to some extent, stabilize and increase aggregate net farm income, they may also widen the dispersion of its distribution among individual farmers. Thus certain of the income effects of these techniques may be considered undesirable but such effects may be corrected by other means.

If a free market is to be utilized to distribute income, farmers have a right to demand that firms in other sectors of the economy should abide by the same general set of rules under which they themselves operate. This is not to suggest that farmers are deterred by any superior moral scruples from restricting output in order to increase profits or from seeking tariffs to raise the level of the prices which they receive. Rather it is a case of the nature of their industry being such as to render these devices of little or no avail in increasing the prices of most agricultural products. However, in the interest of increasing the welfare of all citizens in the longer run, as well as their own immediate gains, farmers might legitimately request a modification of two factors which increase the price of the goods which they buy. These
include, first, the Canadian tariff structure on durable consumer and producer goods, and secondly, the existence of imperfect competition in the domestic firms supplying them with these goods. On the other hand, agriculture should not expect to claim special benefits if uniform rules of the game are established and enforced for all firms in the economy.

In examining the operation of a forward price structure we have seen that transfer payments would be made to farmers unless the administrators of the program were able to forecast equilibrium prices with complete accuracy for periods ranging up to thirty months in advance. Since this is, of course, not possible, farmers would receive transfer payments, even if the difference between the market price and the forward price, in the event the former exceeded the latter, were collected by the pricing agency. Since the collection of this excess is not administratively feasible it was suggested that no compensatory payments be made unless the market price was less than 90 per cent of the forward price in order to reduce the size of the transfer payments. Again under the Schults plan of a floor price for each commodity equal to 85 per cent of the average pre-depression price, substantial transfer payments would be made to farmers who might already be enjoying a fairly high level of net income.

The question may legitimately be asked as to why farmers, as distinct from any other group of citizens, should receive subsidy payments during periods of unemployment and low prices. A partial defence might be made on behalf of firms in agriculture in that they continue to produce at full capacity and, in Canada at least, on the grounds of the peculiar
handicaps to which these firms are subject relatively to other firms in the economy. If farmers are to demand the enforcement of competition in the industrial sector of the economy and the progressive removal of a tariff structure which bears more heavily upon themselves, they should not condone the existence of these factors by accepting special treatment during periods of depression. If the agricultural industry is being discriminated against this is a situation which requires a change in the rules of the game during periods of prosperity as well as during depression. It is not enough to argue that payments to persons on farms are anticyclical in their effects. Payments to other classes of citizens might be equally effective from the standpoint of increasing demand.

If then the general principle behind income supports for firms in agriculture during a period in which prices are temporarily depressed is to permit the operators of those firms "to hold their business together" and to maintain an acceptable standard of living for their families and themselves, a more efficient means than that suggested by Schults may be available.¹ We believe that it may be possible to use income tax returns not only as an efficient means of collecting revenue but also, during periods of depression, as a method of supporting farm income.

¹It is interesting to note that in his Redirecting Farm Policy, published in 1943, p. 66, Schults laid down the following rule as a positive proposal "on the income side".

Supplementary income should be tied to the farm family, the home, to consumption, which in the last analysis means relating it to the human agent. This is in contrast to supplementing income on the basis of property resources—such as farm land, the size of the farm, etc.—or tying it to the farm as a business concern.

Although he continues to recognize this principle in his later work, Schults apparently believed that some method of placing a floor under farm income through the stabilisation of prices was desirable.
1. **The operation of the plan**

With the rising level of farm income resulting from greatly increased output and higher prices which accompanied the higher war and postwar demand for food, an ever-widening circle of Canadian farmers have acquired an acquaintanceship, if not friendship, with income tax returns. We propose now that the tax machinery be made reversible. Since farmers, when completing returns, arrive at an estimate of their net income by deducting operating expenses from gross receipts, payments could be made during periods of low prices to enable farm operators to cover operating expenses, and in addition, have a minimum amount of income available for living expenses. This approach to the problem of maintaining a minimum level of farm income would also assure farmers against a loss in equity in their business and permit them to effect repairs and replacements in the face of drastic slumps in the prices of farm products.

The success of any such plan hinges upon its economic effects, the feasibility of administering it and its acceptability. Briefly the plan is to guarantee to all bona fide farmers, resident on their farms, a government payment equal to a fixed percentage of any deficit of their net farm income below a specified minimum income based upon the number of persons in the farm family. If such a minimum level of income was fixed at $500 per person, a family of four would receive a payment of, say, 80 per cent of any deficit of their net income below $2,000. Actually their gross receipts from the sale of farm products, less operating expenses, might amount to $1500 in which case they would receive a government payment of $400. The suggested figure of a minimum of $500 per person is, of course, purely tentative as is the 80 per cent of the deficit. The purpose of
paying only a percentage, rather than the whole of the deficit, is to avoid removing the incentive for families below the minimum net income to increase their own earnings. We turn first to an examination of some of the details of the proposed plan and will then proceed to a discussion of the wider economic effects of the program.

a. Definition of operating expenses. If farm operators are to be assured of covering their operating expenses the determination of what does and does not constitute operating expenses is of considerable importance. As a first approximation we suggest that all cash expenses connected with the operation of the farm be allowable, including among other items: taxes, rent, wages, interest, feed and seed, fuel, twine, repairs and an allowance for cash outlays to make good the depreciation on buildings and equipment. Generally capital expenditures would be excluded although the interest on such capital outlays would be considered a legitimate expense. Purchases of new machinery or the materials for new buildings or additions to present ones would be excluded under this provision both to forestall uneconomic investment in this type of capital outlay and to prevent heavy transfer payments to people in agriculture.

The proposal that a farmer should be guaranteed his operating expenses during a period of depression might be criticized on the grounds that, if he knows that his gross receipts will not be sufficiently high to cover both operating expenses and a minimum level of cash income, he will not be concerned with the price which he pays for factors of production since he can charge them as an expense. This is a valid point and might prove
to be a serious defect. It could be circumvented by allowing the farm
operator to charge his expenses for the year preceding the onset of the
depression deflated by the index of prices paid by farmers for goods and
services used in production. His expense allowance would not change
then irrespective of his current expenses and it would be to his ad-
vantage to keep expenses as low as possible. The practice of making up
only a percentage of the deficit of net farm income below the minimum
would also act as an incentive to farmers to keep their expenses down.

The further objection might be raised that the plan would dis-
criminate in favour of those operators employing a smaller relative
percentage of their own capital. This arises from the fact that interest
is allowable as an expense. The operator using borrowed capital would be
permitted to include an interest charge in his expenses whereas the man
using his own capital would not. Thus of two operators with identical
firms (farms) located across the road from each other and differing only
in that one man owned his farm and the other only a part equity in his,
the latter would receive a larger government payment by the amount of the
interest payable on the debt which he is carrying. On the other hand,
it might be argued that since the operator owning his capital has the
same cash income he is not in need of a government payment to hold his
business together or to maintain his family’s standard of living.

b. Definition of Income. The above point gives rise to another
similar one. In determining whether a farmer is entitled to a govern-
ment payment in order to bring his income up to a specified minimum level
the question arises as to whether income from non-farm sources or from
factors used by other farmers should be included as income. That is,
if a farmer sustains a loss on his own farming operations yet derives an
income from bonds or as rent from another farm, should such income be
included for the purpose of determining the size of the payment which he
should receive from the government?

The basis for the answer to this question must be found in the pur­
pose of income supports. If the payments are intended as an emergency
measure designed to maintain living standards and to prevent large cap-
ital losses to farmers through no fault of their own it might seem that
those with income from other sources would not require assistance. Should
this argument be accepted, however, it would seem consistent to deny pay­
ments to those with liquid savings available to meet deficits, or to
those able to borrow on real assets. However, it would not seem feasible
to determine an individual's claim to payments on the basis of his access
to liquid capital. Moreover if the government undertook to make payments
to farm operators on the basis of their net farm income, exclusive of
income from non-farm sources, it might encourage a heavy movement of people
back to the farm during periods of depression. We would suggest that all
income should be included in determining whether or not any given farmer
qualified for a payment.¹

A second problem which arises in defining income is that of deter­
miming whether or not changes in the inventory of farm products on the

¹If the operator and his family are not resident upon the farm but
reside elsewhere and derive income from other sources the decision is
more difficult. Much would depend in that case upon whether the plan
were extended to industries other than agriculture.
If a farm operator builds up his livestock herds or holds grain in his bins, should the sales value of such an increase be included as income? It is immediately apparent that if it were not a farm operator might be able to increase the size of his payment by increasing his inventories. Changes in the inventory of farm products should, therefore, be taken into account. In order to avoid gains or losses attributable to price changes the physical change in inventory should be valued at the average price prevailing for that grade of product during the year and in the area in which the farmer is located.

c. When should the plan be effective? Schultz has suggested that the thermostat which controls compensatory payments should be hooked to an index of employment. The question arises as to whether this is a satisfactory criterion by which to determine when a plan such as we have outlined should be in effect. Obviously such a scheme should be operative only during periods of depression; to guarantee all farmers their operating expenses irrespective of the level of employment would destroy the effectiveness of the price system as a guide to production. Our objective, it will be recalled, is to devise a plan to support farm income in the event other measures designed to maintain a high level of employment in the economy as a whole are ineffective. The proposal is definitely

1The present income tax legislation in Canada permits farmers to file their returns on either a "cash" or "accrual" basis but they may not shift from one method to the other without permission.
not intended to be operative except during periods of unemployment and accompanying low prices for farm products.

It is possible that even with a high level of employment in the domestic economy the prices of such export staples as wheat, bacon, apples, cheese and beef may decline to such an extent as to cause a low income to firms specializing in any one of these products. Should we, therefore, put into operation a plan to maintain a minimum level of farm income for all farms whenever the price of any single product declines? The answer, I think, must be in the negative. Changes in supply and demand conditions may cause the price of any product to decline and the purpose of an income support plan should not be to maintain the level of payments to factors employed in producing that product thereby tending to discourage their shift to other uses. This argument constitutes a fairly strong case against a program of selective price support.¹

Notwithstanding the very marked influence which the export demand for certain Canadian staple foodstuffs has upon their price, the determination of when an income support plan would go into effect should probably be tied to the level of domestic employment. Past experience would indicate that the level of employment within Canada is closely correlated with the

¹Press dispatches on the recent action of the Agricultural Prices Support Board in supporting the price of potatoes produced in the Maritime Provinces in 1946 suggest that the Board considers it desirable to maintain the income of particular groups of farmers by supporting the price of their product whenever it appears "too low". In this case the Board is attempting to bolster the lower price of Maritime potatoes resulting from a large crop by buying the potatoes at $1 per cwt. for No. 1 potatoes and reselling to starch companies presumably at, or below, the market price. A news item on this action carried by the Western Producer of October 24 is significant. "When representatives of the U.F.C. and A.F.U. striking
general level of export demand. This is understandable since roughly one third of the net national income is derived from export sales. It is suggested, therefore, that the income support plan should be put into effect when an index of the level of employment drops below a point which would allow for a reasonable degree of frictional unemployment.

Once the plan went into operation any farmer whose income failed to cover his expenses would receive a payment equal to a fixed percentage of the deficit of his net income below the guaranteed minimum level of say $500 per person for members of the family resident on the farm. Income from non-farm sources and other direct government payments, such as family allowances, would be included in calculating his net income. Under such a scheme families on many small unproductive farms might find themselves better off when the plan was in effect than during periods when the level of employment exceeded the pre-determined level at which the plan became operative. None the less, if the economy operates at a level above this critical point during any reasonable proportion of the time, these people would still find ample incentive either to move to better paying occupations or to acquire a more productive combination of resources. Other measures designed to help them achieve one or other of these latter alternatives

farmers were in Ottawa they were told that the Board might find it necessary to take direct action in regard to individual products, even though the general farm price level was satisfactory. If this statement accurately describes the operating rules of the Prices Support Board it would seem possible that price floors might be established which would bear little relation to the economic position of the commodity in question. Potato producers will derive a much higher gross income from a large crop than from a small one if the low price for the former is supported by government action.
should supplement any price policy.

It might be contended that the objective should not be to establish a flat minimum level of income to all farm families but that a graduated rate of payment should be applied to incomes above this minimum. That is, on the first $1,000 of net farm income in excess of the minimum a payment of $100, or 10 per cent, should be paid, say 5 per cent on the next $1,000 and so on and that this rate would vary with the number of dependents which the farm operator was able to claim. This would make the negative income tax roughly correspond with the principle of a positive tax. Presumably the basis for such a graduation would be that those farm families accustomed to a higher standard of living by virtue of a higher income would still preserve a differential over those accustomed to a lower standard. This assumes that all incomes are reduced in approximately the same proportion. Actually this is not likely to be strictly true. Moreover if a minimum level of farm income is to be assured farm families by means of transfer payments there would not seem to be any valid basis for discrimination according to past standards. For this reason it would seem preferable not to make payments once the farmer's net income exceeded a predetermined level.

2. The integration of a forward price and an income stabilization plan

There would not appear to be any conflict between this income support plan and the program suggested earlier as a means of securing greater price certainty for both feeds and final farm products. It will be recalled that
by the use of a storage program for grains we proposed to place a near-
average weather crop on the market each year and in this way eliminate a
large part of those variations in price attributable to fluctuations in
supply. In addition we urged the immediate investigation and adoption
of a system of crop insurance which would regularize the individual far-
mer's year to year sales of grain. Stable sales multiplied by a more
stable price gives a gross income which is more regular than that attained
when both output and price vary, and frequently in the same direction.

The use of forward prices for livestock and livestock products
would stabilize gross receipts to some extent since they would promote
more stable output of these products. Price schedules varying inversely
with total production would stabilize gross income from perishable plant
products but not necessarily the gross income of the individual producer.

Now upon these other devices we superimpose a scheme designed to
maintain a minimum level of farm income during periods of depression.
There is no overlapping of the two. Forward prices are announced each
year during a depression just as during a period of high employment.
Indemnity receipts from crop insurance are included in gross income and
each farmer still attempts to maximize his income. There is no problem
involved in making the transition from a period of high employment to
one of a lower level so far as the operation of this plan is concerned.

D. Relative Merits of the Plan

The writer regards this proposal to support farm income as a logical
extension of the Norton-Working plan. This latter scheme is static in
that it would guarantee firms in agriculture a minimum share of the
national income based upon some historic distribution pattern. More­
over it apportions transfer payments on the basis of volume of output
and value of product; the income supplement of the recipient is tied
to the productivity of the factors under his control and to the prices
of the products which he produces. The Illinois plan has, however,
one strong point in that it attempts to supplement income on the basis
of income criteria, not on product price criteria.

The negative income tax proposal ties income payments to the
human factor rather than to products or resources and yet, like the
Norton-Working plan, is an approach from the income side. It does not
interfere with the best use of resources and it does not make transfer
payments to farmers who are able to earn a satisfactory standard of
living for themselves and their families without such help. Payments
would not be regressive and would be anti-cyclical in their effect since
the recipients would spend a very high proportion of their income pay­
ments. Moreover it is a type of program which could be extended to
persons engaged in industries other than agriculture; people in agri­
culture are not anxious to receive discriminatory treatment either fav­
ourable or unfavourable—especially if such discrimination is obvious
and may not be easily rationalised. The assurance of a minimum level
of farm income during periods of depression should eliminate much of the
uncertainty which leads to capital rationing.

Essentially this proposal might be characterized as an approach
from the welfare point of view rather than from the standpoint of the
allocation of resources. It attempts, during periods of depression, to single out those farm families whose incomes are inadequate to provide them with an adequate standard of living. It represents, in this respect, a marked departure from that method of supplementing farm income which ties payments to prices or to the quantities of productive factors possessed by the farmer. The divorcing of policies which are intended for welfare purposes from those designed to improve the allocation of resources offers some hope of achieving greater progress along each of these lines than would be possible if no such distinction were made. The use of a system of payments based upon the individual farmer's net income offers a more efficient approach to the welfare problem in agriculture.

Finally, the administration of such a plan should be fairly simple since the machinery for handling income tax collections is already well established.

A good example of this latter type of income supplement is the payment made under the Prairie Farm Income scheme which was applied in Canada during the crop year 1941-42. Under this program a payment of 75 cents per acre was made to each farmer in Western Canada on one half of the cultivated acreage of the farm with a maximum payment to any one individual of $150. This scheme has been defended in these terms:

Direct payments were made to the spring wheat farmers of Western Canada in order to provide sufficient income to maintain them on the land in the face of low crop yields and low prices. The cultivated acreage of each producer was taken as the most equitable basis upon which a cash addition to income could be distributed.

The disadvantages of the scheme may include opposition on the part of commercial farmers who contend that all they need and are rightfully entitled to is a "fair price" or a price not less than costs of production. Such objectors will brand the payments as "relief". However, farmers are now accepting family allowances as no more than their just desserts and they have no objection to subsidies tied to wheat prices. The writer is not convinced that this objection warrants the rejection of such a plan. Farm people may also point to such institutional factors as the tariff and the lack of competition in the durable goods and agricultural processing industries and demand for their own products a rigid price at a fairly high level in return. To attempt to achieve a solution through this type of approach is simply to hang another milestone to the neck of the price system.

One of the tasks which the economic system is called upon to perform is that of moving people out of agriculture and into other industries in the interests of raising the marginal value product of the human factor in agriculture relatively to its marginal value product in other industries. Past experience has shown that during periods of unemployment this movement is checked or the direction of the flow may even be reversed. Would not the provision for the maintenance of a minimum per capita level of income for people on farms augment this reverse flow of people back into agriculture during periods of depression? The answer will of course depend upon the level of employment existing in the non-farm sector of the economy together with the measures adopted to maintain the level of
income to persons employed in these other industries.

Canada now has a system of unemployment insurance supported by contributions from employer, employee and the government which applies to all workers in most non-primary industries except those on a contractual basis earning more than $2400 a year.\(^1\) If such workers moved with their families to a farm, receipts from this source together with family allowances would be included in their gross income thereby reducing the size of their claim for a direct payment in respect of their farming operations. This factor might tend to offset, to some extent at least, the tendency which urban workers might have to move to a farm in order to qualify for a government payment. Any system of supporting farm income will tend to attract people into agriculture. The only effective way to counteract such a movement is to maintain at least equal opportunities for people not living on farms.

\(^1\)Details of the Unemployment Insurance Act, 1940, are included in the Canada Year Book 1941, pp. 665-7, 1942, pp. 686-691 and 1943-44, pp. 612-15.
IX. AGRICULTURAL PRICE POLICY IN CANADA

No consistent system of agricultural price policy has been developed in Canada; price controls affecting agricultural products, conceived as a rule during an emergency, have been opportunistic in spirit. During World War II the various price controls adopted in agriculture have been integrated more closely because of the pressing need for co-ordination of all economic controls in the interests of the best use of resources and the avoidance of inflation in time of war.

We have yet to see how many of these wartime controls in agriculture will be carried over into the postwar period. If such controls are to be continued, will they prove consistent with the types of price control and income supports which we have suggested in the second part of this thesis? A detailed, critical analysis of Canadian agricultural policy has yet to be done; we hope only to sketch in the broad outlines in this concluding chapter.

A. The Development of Agricultural Price Control

It is not surprising that the origin and development of agricultural price control in Canada is centered around wheat, the staple cash crop which provides farmers in the Prairie Provinces with upwards of two thirds of their gross cash income.

1. The pre-World War II period

Controls over the price and marketing of wheat date back to World
War I. In June of 1917 the government undertook supervision over the marketing of wheat, suspending trading in the Winnipeg Futures market and establishing a fixed price. This fixed price was not a forward price in that it was announced only after the crop had been seeded. The Board of Grain Supervisors supervised the marketing of the crops of 1917-18 and 1918-19 but this grain was handled by the regular marketing agencies.¹

The continuance of central purchasing in Europe, combined with a shortage of shipping space and a small crop in 1919 led to the establishment of the first Canadian Wheat Board on July 31, 1919. This Board was given complete control over the marketing of the 1919 crop. The first Board may be regarded as the prototype of the second Canadian Wheat Board established in 1935. The early Board bought all wheat at a fixed price and issued a participation certificate providing for the distribution, on a pro-rata basis to producers, of any surplus derived from the sale of this wheat. The operation of the free market was suspended with the closing of the Winnipeg Grain Exchange and both domestic and export

¹The powers of the Board of Grain Supervisors were as follows:
(a) To ascertain the supplies of available wheat
(b) To determine the prices and the quantities of wheat which might be sold for domestic use and for the account of the Wheat Executive which was the central buying agency in the United Kingdom. This latter agency, toward the end of the war, came to control the allocation of all wheat imports by the Allies and neutral countries in Europe.

prices were determined administratively.\textsuperscript{1} The determination of the price by the seller alone was made possible by the desperate need of the Allied and neutral countries for wheat together with a crop of poor quality in 1916.

The first Wheat Board handled only one crop, that of 1919, and with its dissolution trading was resumed on the Winnipeg Grain Exchange. Farmers, however, were never able to forget that with the operation of the Board they had received a total price of $2.63 per bushel (less marketing charges) for their wheat. The open market price declined from...

\textsuperscript{1}The details of the controls imposed on wheat during this period may be summarised on a chronological basis as follows:

June 11, 1917 - Board of Grain Supervisors appointed.

July 20, 1917 - A maximum price of $2.40 per bushel was placed on No. 1 Northern Wheat, basis Ft. William, effective August 1.

August 17, 1917 - The above maximum price was also made the minimum price and futures trading was prohibited as from September 1.

September 13, 1917 - A fixed price of $2.21 per bushel, effective to July 31, 1918, was announced.

August 26, 1918 - The Board of Grain Supervisors set a price of $2.24\textsuperscript{\$} basis No. 1 Northern in store Fort William. This price was to be effective until August 31, 1919.

July 21, 1919 - Trading in wheat futures resumed, but again suspended July 29, 1919.

August 16, 1919 - August 17, 1920 - Wheat Board paid cash advance of $2.15 and additional payments of 30\textsuperscript{\$} July 9, 1920, and 18\textsuperscript{\$} November 4, 1920, making a total of $2.63.

Sale Price to Canadian Mills.

August 11 to December 27, 1919 - $2.30

December 28 to May 8, 1920 - 2.80

May 9 to August 31, 1920 - 3.50

5\textsuperscript{\$} bushel carrying charge included.

August 18, 1920 - Futures trading in wheat resumed.
$2.73\frac{1}{2}$ in September 1920 to $1.76\frac{1}{2}$ in April 1921. The contrast was impressive and the "lesson" never to be forgotten. A wheat board was henceforth to be associated in the farmers' minds with a high price and the open market with a low one. Proposals for the establishment of another wheat board were immediately made but these came to naught and producers turned their attention to pooling.¹

No further attempts were made by the Dominion Government to control the price of wheat during the decade of the twenties. Between the date of its organisation in 1924 and 1928-29 the Central Sales Agency of the Pools handled 52 per cent of all wheat delivered by farmers in the Prairie Provinces.² This Agency established offices in the United Kingdom and on the continent and pursued "an organized selling policy". It was not until the collapse of the market in 1929 that the Pools ran into financial difficulties through the making of initial payments which proved too high relatively to the price at which they were able to sell. Provincial, and finally Dominion, guarantees of the Pools' debt to the banks were secured but control of the Central Sales Agency passed into the hands of a nominee of the banks, Mr. J. I. McFarland.

Pooling practically ceased after 1930 and "the chief activities which the agency carried on between 1931 and 1935, under the direction of Mr. McFarland were directed toward stabilizing prices." The authors of the Royal Grain Inquiry Commission, 1938, summarize the activities


of the Central Agency in these terms:  

In speaking of the stabilization measures, all that may be said is that they consisted in holding unusually large quantities of grain out of the cash market for long periods of time, and adding to the Central Selling Agency's cash wheat by the buying of futures. The reasons given for this policy were: excessive world supplies, a scarcity of buyers, and unusually low prices.

It would appear to the writer that the Central Sales Agency of the Pools was, albeit under government guarantee, attempting to perform a function which is more properly a responsibility of the Dominion government itself. By acquiring wheat and wheat futures in the open market over the 1930-35 period the Pools agency was in effect attempting to bolster the market against a decline in demand. We will not attempt to evaluate here the extent to which these efforts were successful but it may be worth noting that the average price received by farmers for their wheat was less than 50 cents a bushel for four successive crop years, beginning with 1930, and dropped to 35 cents in 1932. By holding some wheat off the market during these years prices were probably maintained at a higher level than would have prevailed without this intervention; on the other hand, they were lowered when accumulated supplies were finally sold. Since a large part of these stocks were actually held until the drought years of 1936-37 and 1937-38, during which time wheat prices were more than twice as high as the 1930-34 average, this represents a commendation rather than a criticism of the program. Unfortunately this happy outcome was neither premeditated nor foreseen. One of the prime

reasons for the establishment of the Wheat Board in 1935 was dissatisfaction over the inability of the McFarland agency to dispose of accumulated stocks.

Thus these "stabilisation operations" of the Central Agency met with a much greater degree of success than did those of its American counterpart, the Farm Board. This latter agency apparently became discouraged and dumped its accumulated stocks on the market at the bottom of the depression in 1931 and 1932, incurring a loss estimated at from 300 to 400 million dollars.\(^1\) The Canadian "Agency" turned 205 million bushels of wheat over to the Wheat Board in 1935 and this wheat was sold during the years 1936 and 1937 when yields were extremely low and prices relatively high. Finally, although profit in dollars and cents may not be used as a final criterion in assessing the success of an operation of this nature, the accounts of the Central Agency were closed out at a net profit of about 9 million dollars.\(^2\)

Although in retrospect this venture of the Central Selling Agency of the Pools is apt to appear as an effort to stabilise supplies against fluctuations in demand such an objective was certainly not foreseen at the time. The program was initiated to prevent the breakdown of the pool marketing system and was maintained, partly, to prevent the breakdown of the futures market and, partly, to maintain farm income.\(^3\) It

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\(^3\) This is essentially the judgment reached by V. C. Fowke. Dominion Aids to Wheat Marketing, 1929-39. Can. Jour. of Econ. and Pol. Sci. 6: 391. 1940.
was a stop-gap answer to the very difficult situation which confronted Canada as a result of depressed prices and loss of export markets for the most important single product of a large industry. Measures adopted as a means of supporting income levels are clearly beyond the function of a private or co-operative organization.

It is noteworthy that no attempt was made to control the output of farm products during the decade of the thirties. One effort was made to increase farm income through a subsidy tied to price. A payment of 5 cents per bushel was paid on each bushel of wheat marketed during the crop year 1931-32. The measure was supported by Mr. Bennett as a means of compensating farmers for low prices and reducing relief payments. The criticisms were raised that it singled out one product produced in a particular area for special treatment and that it was regressive. Farmers participated in the payments to the extent that they had wheat for sale. The payment had no effect upon the allocation of acreage since the necessary legislation was passed just prior to harvest.¹ It probably had little effect upon the decision of the farmer to feed more or less wheat since all prices were extremely low.

The second notable experiment of the Dominion government in the field of agricultural price control began with the establishment of the second Canadian Wheat Board in 1935. The function of this Board has been described as constituting a "buffer between chaotic conditions in the international wheat market and farmers on the land in Western Canada".²

¹The Act, 21-22, Geo. V, c 60, was assented to August 3, 1931.
The Board was instructed to dispose of the 205 million bushels of wheat which it had taken over from the Central Sales Agency.\(^1\) The Board fixed a minimum price which it would pay for all wheat offered to it.\(^2\) Significantly enough these minimum prices were, prior to the war, invariably fixed just before harvest. They did not, then, represent forward prices and probably had little influence upon the allocation of acreage among competing crops. The cash and futures markets were left open. No effort was made to guide the allocation of resources; wheat prices were supported as a means of supporting farm income while the prices of other grains competing with wheat for the use of resources were left to find their market level.

The modus operandi of the Board was fairly simple. When open market prices were less than the Board price, farmers delivered their wheat to the

\(^1\)This policy is expressed in a statement issued by the Minister of Trade and Commerce on December 4, 1935:

The concentration of surplus stocks of wheat in Canada during the past few years has created an abnormal situation in the world wheat trade.

Last June this situation was recognized by parliament as not being in the interests of Canada or her wheat producers, and the Dominion government desires to have our surplus restored to a normal basis. To accomplish this the Wheat Board will seek the good will and cooperation of the grain and milling trades in all importing countries.

It is not necessary to have and there will not be any 'fire sale' of Canadian wheat, but it will be for sale at competitive values and will not be held at exorbitant premiums over other wheats.


\(^2\)This minimum price prior to an amendment in the Act in 1939 was fixed by the Board with the approval of the Governor-in-Council which means the cabinet.
Board; when market prices exceeded the Board price, wheat was not delivered to the Board. Thus with a fixed price of 87½ cents per bushel the Board bought the 1935 crop and sold it prior to November of 1936. The Board received none of the 1936 and 1937 crops since it refused to accept deliveries when the market price was higher than 90 cents per bushel. During these two years of low yields the 205 million bushels held over from the pre-1935 period were sold.

In August of 1938 Canada had prospects of a slightly lower than average yield but the world output of wheat promised to set a new record. Under these circumstances the Board reduced the fixed price to 80 cents per bushel. The United States was actively subsidizing export sales of wheat and wheat flour. Since the Wheat Board was selling wheat for export at a price lower than that paid to farmers, Canada too was subsidizing exports. Only the method differed from that adopted in the United States; the intent and the effects were the same. Canadian wheat producers were subsidized to the extent of some 61 million dollars.

1 It would be interesting to know how the specific fixed price of 87½ cents per bushel was determined. The figure is suggestive of a compromise between two parties supporting an 85 and 90 cent price respectively. So far as is known to the writer no criteria of an economic nature was used in fixing this price. It presumably represents a price which is fairly close to the expected equilibrium price but was not intended either to yield any specific level of farm income or to induce the production of any particular volume of wheat.

2 The price of No. 1 Northern wheat, Fort William, failed to average 80 cents per bushel for any month during the crop year and averaged about 62 cents for the crop year as a whole.

We have perhaps traced the operations of the Board in sufficient
detail to reveal the fundamental philosophy of the approach which was
adopted prior to the war. Price control was applied to only one
commodity, wheat, in an effort to support farm income in Western Canada.
The open market was not abandoned although it was dominated by the
operations of the Board during those years in which the latter was
active. Fixed prices to the farmers were set at a "reasonable" level
while wheat was sold into domestic and foreign channels at market prices
as sales opportunities presented themselves to the officials of the Board.¹

This approach to the problem of supporting farm income is open to
criticism on several grounds. In the first place, it subsidizes exports
and thus invites similar action from other major wheat exporting countries.
Such a policy results in an outright gift being made to importing countries.
Canadians have tended to be critical of the American policy of export sub-
sidies; not many have realized that Canada has been following a similar
policy although in a somewhat less obvious manner.

Secondly, it may be asked as to why income supports should be tied
to wheat alone. The prices of other agricultural products were low; why
discriminate in favour of the wheat producer? Such discrimination promotes
an uneconomic allocation of resources since the relative prices of wheat
and other grains no longer reflect consumers' choice. The continued use

¹Throughout the year the policy of the Board was to sell wheat at
every reasonable opportunity, when there was demand for it. In reviewing
the sales day by day, it is clear that the largest sales were made as
demand became apparent."

of an income support scheme tied to the output of one product would attract too many resources to the production of wheat while this wheat would be sold for what it would bring on world markets. Production control is the next logical step in such a program and we shall see that the adoption of this technique was hastened by the loss of export markets on the Continent which resulted from the German occupation of Western Europe.

Apart from the shortcomings, from the standpoint of resource allocation, of the Canadian approach to farm income stabilisation this program may also be criticised on the way in which it distributes transfer payments to farmers. By tying supplementary payments to the price of the product the distribution of transfer payments is made regressive. The large wheat producers receive large transfer payments; smaller producers receive smaller payments. The writer is inclined to believe that there is a fairly high degree of correlation between total transfer receipts to individual farmers and their net farm incomes. With the price structure which existed in 1938 it is quite possible that many efficient farmers with larger farms and adequate capital equipment at their disposal were able to produce wheat at a cost of 50 cents per bushel, which included a "normal" rate of profit to the operator. The question may legitimately be asked as to why income should be transferred from other taxpayers to such operators. On the other hand farmers producing livestock, or coarse grains, may have possessed resources which would permit them to earn at least an acceptable standard of living, given the level of prices of
farm products which might be expected to accompany a fairly high level of employment.\footnote{No study has ever been made in Canada of the incidence of transfer payments made by the Wheat Board. Since practically all wheat marketed during the crop year 1940 was handled by the Wheat Board this agency would have a record of all payments to individuals. The 1941 census would provide a rough estimate of net farm income for each farm operator. If the two sets of data were combined it would be possible to check on the degree of regressiveness of transfer payments which were made upon this basis. Some very rough indication of the distribution of such payments may be gained from the following data giving the average seeded wheat acreage, per permit (farm), in the various major soil zones in Saskatchewan for the year 1941. These data were compiled from unpublished records of the Wheat Board.}

If transfer payments to farmers are intended to permit the latter to maintain a minimum acceptable standard of living during a period of low prices, tying such payments to the price of the products which they produce is neither an equitable nor an efficient method of attaining

\begin{center}
\begin{tabular}{|l|c|}
\hline
Soil Zone or Type & Acres \\
\hline
Grey-wooded & 39.8 \\
Black & 65.2 \\
Dark Brown (excluding Regina) & 116.5 \\
Regina heavy clay & 207.9 \\
Brown (excluding Sceptre) & 154.9 \\
Sceptre heavy clay & 222.0 \\
\hline
\end{tabular}
\end{center}

Farmers on the Regina and Sceptre heavy clay series might be expected to benefit most from this type of payment because of the large wheat acreage per farm and the relatively high yields on these heavy soils. Had these transfer payments been tied to oat or barley prices farmers in the grey wooded and black zones would have been favoured relatively to farmers on the open plains because of the relatively greater concentration and higher yields of these crops in the former zones.
this end. To link such payments to the price of a single product, even though a high percentage of those farmers whom it is desired to subsidize produce this product, is still less equitable from the standpoint of income allocation and less efficient from the standpoint of the best allocation of resources. In order to examine some further problems involved in this method of supporting farm income we wish to survey briefly the experiences of the Wheat Board during World War II.

2. The World War II period

In the face of the second largest crop in Canadian history (the final estimate of the 1939 crop was 521 million bushels) the minimum price was lowered to 70 cents and a 5000 bushel limit was placed on deliveries by any one producer. The imposition of this limit might indicate that the government was aware of the regressive effects of subsidies tied to prices. Producers wishing to market wheat in excess of this limit might either sell on the open market or pool, in which latter case they were guaranteed a minimum initial payment of 56 cents per bushel. This overall limitation on deliveries proved extremely difficult to enforce and was abandoned after one crop year. The initial price was now a minimum, not a fixed, price and if the Board realized any profits, such profits would be distributed on a pro rata basis to those selling to the Board.

Section 14 of the Wheat Board Act of 1935 made provision for the extension of the provisions of the Act by the approval of the Governor-in-Council to oats, barley, rye and flax. Such an extension was never actually made and this section was repealed in the amendment of 1939.

Each year's account was now treated separately. Any surplus realized on the 1939 account was not to be applied to the deficit incurred on the 1938 crop. The Board incurred a deficit of 8.2 million dollars on the 1939 crop.

The program for the crop year 1940-41 was announced just prior to harvesting on July 20, 1940. Another 500 million bushel crop was in the fields and since minimum trading levels for futures had been in effect on the Grain Exchange during the summer months the elevators were refusing to buy except on Board account since they could not hedge their purchases. This prevented larger producers from marketing more than the 5000 bushels which the Board was then prepared to accept. The principal changes in Board policy were to remove this limitation, to provide storage payments for wheat stored on farms, to regulate all grain deliveries, and finally to collect a processing levy of 15 cents per bushel on wheat utilized for human consumption in Canada. The revenue from this tax was to become a part of the general revenues of the Board.

The minister of Trade and Commerce explained this tax in the House of Commons by stating that there was no reason why the domestic consumer should benefit at the expense of the wheat producer by low wheat prices caused by the loss of export markets in Europe. This, then, is the first step toward a multiple priced market for Canadian wheat. This tax was, 1

1On May 18, 1940, the May future was pegged at 70 3/8 $, the July at 71 3/8 $, and the October at 73 5/8 $. On June 8 the December future was pegged at 74 5/8 $. This, it will be recalled, was at the time of the German break through in the West.
however, removed at the end of the 1940-41 crop year.

The immediate cause for the introduction of a delivery quota system was the lack of sufficient elevator space to house the large carryover (270 million bushels in Canada) and the new crop (540 million bushels). Accordingly each permit holder was permitted an initial quota of 5 bushels per seeded acre for each acre of wheat, oats and barley. These quotas were increased as elevator space became available. It was not until the next year, March 12, 1941, that an overall limitation on deliveries off farms was imposed. From the 1941 crop only 230 million bushels were to be accepted by the Board and each farmer's share was to be based on 65 per cent of the acreage which he seeded to wheat in 1940 multiplied by the average yield at his delivery point. This then is the beginning of an indirect attempt at production control and, incidentally, a two price system for wheat. Any wheat over and above his quota the farmer must dispose of as best he can. This two price system did not come into effect for the 1941 crop since the open market price remained slightly above the Board price of 70 cents per bushel throughout the year.

The announcement of the marketing policy for the 1941 crop was, for the first time announced prior to seeding. Since it was made on March 12, however, it left farmers comparatively little time in which to alter their plans. Since the government was using the price of wheat as a means of supporting farm income, rather than as a means of allocating resources, it now had resort to another device to secure a desired shift in resource use. The prices of livestock and livestock products had
risen relatively more than those of grains\(^1\) while the stocks of wheat resulting from favourable weather, a guaranteed minimum price and a diminution of export demand, threatened to swamp storage facilities. Accordingly the Wheat Acreage Reduction policy was instituted to increase the output of feed grains and, by decreasing wheat production, to relieve some of the pressure on storage facilities. Payments of $4 per acre were made for summerfallow, and $2 per acre for coarse grains which were seeded on acreage which had been devoted to wheat in 1940. These payments, together with the limitation on wheat deliveries, diverted some 6.6 million acres from wheat to coarse grains and summerfallow.

The controls which were introduced to apply during the crop year 1942 are significant in the evolution of a price program for farm products. A general price ceiling had been introduced in Canada in the fall of 1941, freezing prices at the average level prevailing during the selected base period, September 15 to October 11, 1941. A ceiling of 64 3/4 \$ per bushel was placed on barley, 51 1/2\$ on oats and $1.64 on flaxseed. Stocks of wheat were at an all time high, storage capacity was still limited and efforts were being made to expand the output of livestock products, particularly bacon. The government was, therefore, anxious not only to hold the reduction of wheat acreage which had been achieved in 1941 but to continue to shift resources from the production of wheat to the production of coarse grains.

\(^1\)In March 1941 the index of prices received by Saskatchewan farmers for livestock was 130.2 (1935-39 = 100), for dairy products 133.8, while the index for grains was only 81.3. These data are from an unpublished index computed by the writer. The official index released by the Dominion Bureau of Statistics on September 3, 1946, does not give a breakdown by product groups.
The program for the 1942 crop was announced prior to seeding time on March 9. The highpoints of the new program were the following:

1. The initial minimum price of wheat was raised from 70 to 90 cents.
2. The Board would accept delivery of only 280 million bushels from the new crop. These deliveries were to be allocated among producers on the basis of "authorized" acreage. (65% of each producer's seeded wheat acreage in 1940, adjusted for inequities.)
3. The Wheat Acreage Reduction program was continued with $2 per acre payable on each acre seeded to wheat in 1940 and now seeded to grass, coarse grain or summerfallowed.
4. Floor prices of 45 and 60 cents respectively for oats and barley were guaranteed.
5. A fixed price for flaxseed of $2.25 per bushel was announced.

For the second time forward prices for grains had been announced in advance of seeding time but, as in the preceding year, they permitted farmers little time in which to alter their plans. Prices were still, though, not being used as a means of directing production. Since the ostensible purpose of the program was to shift resources from the production of wheat to the production of oats and barley, and the Wheat Acreage Reduction payments were clearly designed to promote this end, why should the initial price of wheat be raised and that of oats and barley held down by a ceiling? A part of the answer may be found in the argument that the prices of livestock products were also under ceilings and to raise the price of coarse grains would have necessitated an increase in livestock prices if the same livestock-feed ratios were to be preserved. From the standpoint of controlling the cost of living such
an increase in livestock prices was not desirable.

On the other hand if resort had been had to relative prices alone as a means of securing a shift, forward prices might have been announced at expected equilibrium levels. Such a policy would have encouraged a greater use of wheat for feed. This technique was not adopted so another had to be found to take its place. Since the price of wheat had now been increased it was deemed advisable to subsidize its use for livestock feed. Accordingly on September 11, 1942, a drawback of 8 cents per bushel was granted on western wheat used for feed.¹ Although this subsidy was effective for feeders in Eastern Canada, it meant little to farmers in Western Canada who produce more wheat than they feed to livestock or poultry.² Wheat was now overpriced relatively to coarse grains and, in

¹P. C. 8175, September 11, 1942. Payments in respect of western wheat purchased for feed purposes. This drawback was later increased to 25 cents per bushel when the initial price of wheat was raised to $1.25 per bushel.

²This type of subsidy discriminates in favour of the specialized feeder and against the feeder who grows his own feed. The opportunity cost of wheat for feed to the wheat grower is the price which he can secure for his wheat if he sells it. Thus a farmer in Manitoba feeding part of the wheat which he harvested from his 1942 crop should value this wheat at the rate of 90 cents per bushel for No. 1 Northern basis Fort William, plus the expected value of his participation certificate. A cattle or hog feeder producing no wheat himself could secure feed wheat at the rate of 90 cents per bushel basis Fort William, less 8 cents drawback. The price of wheat to the feeder-grower is thus higher by the sum of the drawback and any payment which might be made on the participation certificate. The average participation payment on the 1942 crop was 11½ per bushel. This unhappy result was secured administratively by requiring any permit holder to have entered thereon his purchases as well as sales of wheat. No feed drawback was payable until the permit holder had bought more wheat than he sold and then only on his net purchases. Similarly participation certificates were payable only on net sales. This type of discrimination also applied to the Board's method of handling equalization payments on oats and barley. We have seen that this disadvantage was inherent in the Schults and Norton-Working plans. It is both important in its effects and peculiarly difficult to overcome.
order to correct this maladjustment, payments were being made on a per acre basis for the transfer of resources to the production of coarse grain. This appears to be an extremely circuitous path to a desired end. It lends support to the argument that if transfer payments to people in agriculture are considered desirable they should be tied to the human agent rather than to the prices of products or to factors of production.

The details of price control as applied to grains are on the record; we have examined them in sufficient detail to point up the methods employed. The government had apparently adopted the principle of announcing minimum forward prices in advance for wheat but never seemed aware that the acreage seeded to wheat depended not only on the price of wheat but also on the price of competing crops. As a result prices to the farmer for other crops were often changed after seeding, when these changes might have secured a better use of resources if announced earlier. The price program for the 1943 crops is a case in point. On January 29, 1943, the Minister of Trade and Commerce, the Hon. Mr. McKinnon, announced an initial payment of 90 cents for wheat. Ceiling prices for oats and barley were still effective. However, on April 6 a policy of paying equalization payments on oats and barley was announced in order to permit Western farmers to benefit from the higher prices realized from exports of these two grains to the United States. Notwithstanding this substantial increase in the price of coarse grains which was announced too late to affect the acreage seeded, the area put into coarse grains increased by some 22 per cent. It is not possible, however, to be too
critical of minor points. With the changing fortunes of the war the outlook was likely to change overnight; to ask any agency to make price changes known any considerable in advance under such circumstances may be unrealistic.

On September 27, 1943, before any large part of the new crop was marketed, the Government closed the Winnipeg Grain Exchange. The Wheat Board was empowered to take over all commercial wheat and the accounts for the 1940, 1941 and 1942 crops were closed out at the open market price prevailing when the Exchange was closed ($1.23\frac{1}{4} per bushel for No. 1 Northern). A minimum price to farmers of $1.25 per bushel was guaranteed until July 31, 1945. Henceforth the Wheat Board was to determine the prices at which it would sell without reference to any competitive market in Canada. A multiple price structure for wheat came into effect with one price for wheat being sold to the United Kingdom or other Mutual Aid countries, a second price to non-mutual aid countries, and a third to the domestic market which was in turn subdivided between food and feed uses by different "drawbacks."\footnote{The price paid to the Wheat Board for wheat for domestic consumption is $1.25 per bushel. A drawback of 25 cents is allowed on commercial wheat fed to livestock and 47 5/8 cents on wheat used for human consumption. These payments, however, are made directly from the treasury. It might be argued that farmers are still subsidizing domestic consumers since wheat which the Board sells for $1.25 for domestic use would bring $1.55 if sold to the United Kingdom (contract country) or in excess of $2.00 if sold to non-contract countries.}

Perhaps the latest significant development in terms of its effect upon price determination and government control over marketing has been
the wheat contract with the United Kingdom.\(^1\) Since the government has
undertaken to supply minimum quantities of wheat at fixed or minimum
prices it is fairly certain that the government will remain the sole
purchasing and selling agent for wheat until at least July 31, 1950. The
minimum price to the farmer is to be $1.35 per bushel throughout the
four year period with any surplus distributed as participation payments
after the expiration of the agreement. Although the Wheat Board is
still supplying the domestic market at a price of $1.25 per bushel, the
Minister of Agriculture has indicated that the price will be raised to $1.55;\(^2\)

\(^1\)This agreement covers a period of four crop years during which the
Canadian Government undertakes to sell and the United Kingdom Government
to purchase the following minimum quantities of wheat or its equivalent
in wheat flour at specified prices or minimum prices:

(a) 1946-67 - 160 million bushels at $1.55 per bushel
(b) 1947-48 - 160 million bushels at $1.55 per bushel
(c) 1948-49 - 140 million bushels at not less than $1.25 per bushel
(d) 1949-50 - 140 million bushels at not less than $1.00 per bushel.

Should the Canadian government be prepared to offer and the United Kingdom
to accept any wheat over and above these minimum amounts, any such addition­
al sales are to be governed by the terms of this agreement. The contract
also specifies that the prices to be paid for the 1948 and 1949 crops
are to be negotiated prior to December 31, 1947, and December 31, 1948,
respectively. Purchases of flour are not to be less than 24 million
bushels, wheat equivalent, during each of the first two years of the
contract and not less than 18 million bushels during each of the last
two years of the contract. The actual purchases of flour are to be
determined by the out-turn of the crop.

\(^2\)The Hon. J. G. Gardiner, as quoted by the Winnipeg Free Press,
October 30, 1946. In the event the price to non-contract countries
drops below the price to the United Kingdom before the expiration of
this agreement it will be interesting to observe what price will be
fixed for the domestic market.
the price to the United Kingdom, as soon as price ceilings are relaxed. The price to non-contract countries is to be in line with those charged by the other principal suppliers.

The Government's plans clearly envisage a resort to marketing quotas at such time as these may be deemed advisable. In announcing this program for wheat in the House of Commons on July 30, 1946, the Minister of Trade and Commerce made the following statement:

Deliveries in the last three years of the pool will depend upon conditions of production and of markets. It will be provided in the new orders that the deliverable quantities will be determined by the Governor-in-Council before each new crop year, but in any event, the deliverable quantity shall not be less than 14 bushels per authorised acre. The latter provision should safeguard wheat producers against an extreme reduction in deliverable amounts, should available markets be smaller than we expect.

Although we have traced through the price controls which were applied to grains during World War II, the prices of all major farm products were controlled. In the case of no other product, however, was an exclusive government monopoly created to handle a commodity. Market prices were allowed to operate, although restricted by ceiling and floors at the wholesale level. The domestic price of such export staples as bacon, beef, and cheese were largely determined by the export prices negotiated between the Governments of Canada and the United Kingdom. Purchases for the account of the British Ministry of Food were handled by commodity Boards in Canada such as the Meat Board and the Dairy Products Board. Exports to the higher priced American market were prevented by export embargoes. Subsidies were paid both to encourage an expansion in output and to hold retail food prices at ceiling levels. Practically all subsidies, other than those on hogs, have been removed but, otherwise, government controls remain unimpaired.

1The Hon. J. A. MacKinnon, Hansard, July 30, 1946, as reprinted in
Forward sales contracts with the British Ministry of Food have been negotiated for bacon, beef and dried milk up to the end of 1948, and for eggs to the end of 1947. These contracts, in effect, provide for minimum forward prices for hogs and offer a fairly high degree of price certainty for beef. The degree of price certainty offered for milk and eggs is somewhat less because of the smaller size of the contracts relatively to the probable exportable surplus.

B. The Probable Impact of Past Experience Upon Future Price Controls

The close association between a high level of farm income and extensive government controls during the war period has conditioned most Canadian farmers to accept such controls fairly readily. The palatability of close regulation in the face of lower prices and under less favourable weather conditions has yet to be observed. Many of the controls which we have suggested in Chapters VI to VIII have differed considerably from those actually in effect. How do the controls which Canada has adopted square with the premises upon which those suggested in this thesis were based? Has Canada devised techniques which will permit of an efficient allocation of resources and which will, in the event of a depression, permit the maintenance of a minimum acceptable standard of living for farm people without interfering with resource allocation? We propose in the concluding pages of this chapter to evaluate Canadian agricultural

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policy according to these two criteria and, where we suggested other
techniques, to indicate the reasons for so doing.

The possibilities of maximizing output by achieving the best possible
allocation of resources has received less attention in the formulation of
Canadian agricultural policy than the problem of increasing farm income.
Nevertheless some progress has been made in using prices as an appropriate
means of allocating resources.

1. The use of forward prices

We have seen how, during the later years of the war, prices for
wheat were announced in advance of seeding time. Such announcements
increased price certainty but were of little use from the point of view
of resource allocation since the prices of competing products were not
announced. The objective seemed primarily to increase farm income by
means of a higher price and then to fall back upon some other device,
such as an acreage payment, in order to achieve a shift in resource use.
We have stressed this point in connection with efforts to shift resources
from the production of wheat to coarse grains.¹ Nevertheless some
attention was paid to the expected equilibrium price in fixing the
minimum price in order to control the size of the transfer payment to
wheat producers.

The failure to make the best use of prices to direct production is
well evidenced by the manner in which the annual Agricultural Objectives

¹See above p. 235.
Programs have been conceived and carried out.\(^1\) Prior to the convening of these annual conferences, committees, composed of officials of the Dominion Civil Service, estimated the amounts of the various farm products needed during the coming year. In the case of crops they worked out a suggested allocation of available acres in such a way as to come as close as possible, assuming average yields, to meeting these projected requirements. Similar preliminary goals were set up for livestock and livestock products. And, although cognizance was taken of the necessity of keeping objectives consonant with available resources, many committees were never quite sure as to whether they were setting goals or predicting production; i.e. were they establishing objectives or doing outlook work?

At the time the Conference met, representatives of the Provincial governments\(^2\) in turn gave their estimate of the acreage which might be seeded or the output which might be expected from their respective provinces. These estimates were presumably based upon the assumption that present prices would continue throughout the period during which the output, then being planned, would be marketed. Price was not used as a determinant of output but accepted as a given datum. Provincial representatives were not, moreover, informed of any impending price changes. The result was that farmers were frequently urged to produce those products which were needed most but the output of which, in the

\(^1\)See Objectives for Canadian Agriculture 1943. Agricultural Supplies Board, Dominion Department of Agriculture. Ottawa: King’s Printer. Also reports for subsequent years.

\(^2\)The leaders of the provincial delegations are either Ministers or Deputy Ministers of Agriculture.
volume recommended, would not maximize their net farm income. The price structure was also altered during the production period. The bacon contract with the United Kingdom, for instance, provided a forward price for hogs marketed during 1943 yet the price of coarse grains and wheat were raised halfway through the year. The resultant worsening of the feed-hog ratio encouraged producers to market their breeding stock. When it became evident that the desired output of hogs would not be achieved a subsidy was placed on hogs. Unfortunately this bonus was not announced until January 10, 1943, when the breeding season was practically over.

2. Discrimination among producers

We have noted how the system of equalization payments in effect for oats and barley and the drawback subsidies on wheat used for feed have discriminated in favour of the specialized feeder as compared with the feeder who grows his own grain.¹ This type of subsidy, by decreasing the

¹The practice of making equalization payments on oats and barley arose directly from wartime controls. A general price ceiling was imposed in Canada while prices were still rising in the United States. This difference in price levels would have drained a large part of Canada's supplies of grain to the higher priced American market if export controls had not been imposed. Since some exports were still permitted the problem arose as to who should be allowed to export and secure this higher price. The most equitable solution was to pro-rate the differential realized on exports among all those producers delivering oats and barley. A similar problem is now presenting itself with respect to beef cattle. The contract with the United Kingdom calls for minimum exports of 120 million pounds of beef in 1947 at prices ranging from $24.25 per hundred pounds, carcass weight, down. Since this will still permit additional exports of perhaps 200 million pounds, the cattle industry is anxious to be permitted to again export live cattle or beef to its traditionally most important market, the United States. Should such exports be permitted, the distribution of the differential receipts among producers will prove more difficult since no government monopoly controls the cattle industry as the Wheat Board controls grains.
The attractiveness of feeding grain as compared to selling it has been partly responsible for a very marked reduction in the production of hogs in Western Canada. There are two means of overcoming this effect. The most obvious would be to raise the ceilings on oats and barley to a level equivalent to the present price plus the equalization payment and to remove the subsidy on wheat used for feed. This solution would involve raising the ceilings on livestock to preserve the same feed-livestock ratios. The resultant increase in the price of meat and dairy products might not prove acceptable since it would necessitate a break in the general price ceilings and hamper the filling of export contracts for bacon, beef, cheese and eggs at the present fixed prices. The second alternative would be to make payments on grain fed by a grower-feeder. This proposal would involve distinguishing the actual grain which was to be fed to prevent a duplication of payments. Since, to the writer's knowledge, no technical, inexpensive means of marking particular lots of grain is available, this second alternative is not feasible. The ultimate solution must eventually be, then, to remove the "subsidies" and, if it proves impossible to fill the export contracts, either raise the contract price or pay a subsidy on products offered for export. So long, however, as participation payments are made on wheat this discrimination will exist and will tend to discourage wheat producers from feeding wheat.

3. Production controls

Since an economic community as a whole cannot, over any extended period of time, consume more than it produces, restriction of output is
not a feasible method of raising the level of real income in Canada. From this point of view the provision in the latest wheat program for the possible application of a limitation of 14 bushels per acre on deliveries is an ominous one. The use of improved technological practices promises to continue to reduce the cost of producing wheat in Western Canada. To restrict output in an effort to maintain price and thus prevent such decreases in cost being passed on to the consumer is a policy which is not consistent with economic progress.

4. The adoption of a storage program

We have argued that, if the Canadian livestock industry is to be stabilized, there must be a more or less constant ratio between the prices of feed and livestock and that these ratios must be known in advance of breeding time. To even out price variations resulting from fluctuations in supply we suggested that a near average-weather crop be placed on the market each year. Some such device is essential if the degree of price certainty to be gained from forward prices for livestock and livestock products is not to be offset by unforeseen fluctuations in the price of feedstuffs.

At the present time ceiling and floor prices are in effect for oats and barley (the strong demand relative to supplies keeps all grades tight against the flat ceiling). Ceiling prices are, however, of little avail in permitting feeders to carry through their livestock production plans if the feed grains are not available. Forward prices for each crop together with a storage program which would place a near average-
weather crop on the market each year would appear more appropriate to
the reduction of price fluctuations than ceilings and floors which are
fixed through time without respect to the size of the crop and without
assurance of supplies being available.

C. The Present Stabilization Program for Agriculture

Despite the low levels of farm income which prevailed in Canada
during the thirties under the combined impact of crop failure and
depressed prices, no method of supplementing farm income, other than
through direct relief payments and payments tied to the prices of
products or factors, was ever evolved.¹ This latter method of making
payments has come to be looked upon by farmers as a "fair" means of
supplementing farm income. Farm income may be stabilized over time
through the stabilization of prices, the stabilization of output and
the provision for direct income payments to persons on farms. We have
suggested that prices be left to the determination of the market but
that forward prices be used to reduce fluctuations in output result­
ing from producers erring in their anticipation of future prices.

Since market prices may prove inadequate, owing to unemployment in the

¹Payments made on this latter basis include:
(a) The payment of 5 cents per bushel on wheat delivered during the crop
    year 1931-32.
(b) Transfer payments made to wheat producers through purchases by the
    Canadian Wheat Board at minimum prices with any deficit incurred covered
    by the Treasury.
(c) The Prairie Farm Income payments scheme. In 1941 each farmer in West­
    ern Canada received a payment of 75¢ per acre on one half of his cultivated
    acreage up to a maximum of $150. The purpose of these payments was to pro­
    vide the spring wheat farmers of Western Canada with "sufficient income to
    maintain them on the land in the face of low crop yields and low prices."
non-farm sector of the economy, to provide farm people with a minimum acceptable standard of living we have suggested a negative income tax to bring those farm families with a less than acceptable standard up toward the minimum.

1. The stabilisation of aggregate farm income

The trend in recent policy decisions in Canada has been to guarantee a minimum forward price for certain staple farm products such as hogs and wheat. The methods used, however, differ widely from those which we have proposed. We have suggested that forward prices, equal to a high fixed percentage of the expected equilibrium price be announced prior to seeding or breeding time. The establishment of forward prices has been made possible by the conclusion of forward export contracts with the Government of the United Kingdom. The British Ministry of Food has agreed to take all the bacon Canada is prepared to ship up to the end of 1948 at a minimum price of $25 per hundredweight, F. A. S. Canadian seaboard, to the end of 1947 and not less than $22.50 per hundred pounds in 1948. The equivalent of this contract price has been made the floor price throughout Canada with the Meat Board standing committed to purchase sufficient hogs to maintain prices at this level. The conclusion of a forward sales contract for the greater part of Canada's exportable surplus of wheat has made possible a long term minimum price guarantee for wheat without risking the possibility of any large transfer payments being made to wheat producers.

Whatever the effect which these contracts and state trading arrange-
ments may have upon international trading relations they are serving to provide stable prices for some of Canada's staple export products for periods ranging up to three years in advance. Farmers are, in effect, foregoing higher prices for these products at the present time in return for a lower price guaranteed for several years. Provision has, however, been made for the support of the prices of farm products irrespective of whether or not they are subject to forward export sales contracts. These provisions have been embodied in the Agricultural Prices Support Act, 1944.

The intent of this legislation can perhaps best be described by the following provisions: "In prescribing prices the Board shall endeavour to ensure adequate and stable returns for agriculture by promoting orderly adjustment from war to peace conditions and shall endeavour to secure a fair relationship between the returns from agriculture and those from other occupations." Fortunately the authors of this legislation refrained from a definition of what constitutes "adequate and stable returns from agriculture" and "a fair relationship between the returns from agriculture and those from other occupations." Had they attempted to do so the chances are excellent that Canada would have had full blown price or income parity legislation upon her statute books.

Although the criteria which are to be employed in determining the support level of the prices of farm products are not defined, the Act

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1 An Act for the Support of the Prices of Agricultural Products during the transition from War to Peace, 8 George VI, Chapter 29, section 9, subsection (2).
specifies two methods by which such prices are to be supported. These are purchases by the Board in the open market and the direct payment to producers of the difference between the average prices received for their product during a specified period and some prescribed minimum price.

The first method is that currently employed in maintaining a minimum price for commodities under export contract. The second is the technique suggested by Schults which we have already examined. The use of the technique differs from that suggested by Schults in two rather important respects. In the first place, no provision as to when compensatory payments shall be made is provided for in the Prices Support Act. Schults would have such payments made only when a specified minimum degree of unemployment existed and, if this first condition did not prevail, no payment would be made irrespective of the price of the particular product. Secondly, the price at which any product price is to be supported is to be determined by the Cabinet or, in the euphemistic language of the lawyers, the Governor-in-Council.

This latter provision means that the government may elect to support the price of any particular product whose unsupported price they deem insufficient to provide its suppliers with a "fair return" as compared with that earned by people engaged in other occupations. This policy of selective price control invoked at the discretion of the government

1The Agricultural Prices Support Board is, when such supports are deemed expedient, to handle price supports for any "natural product of agriculture, except wheat, designated by the Governor-in-Council, and includes processed meat, dairy and poultry products if so designated", Agricultural Prices Support Act, section (2), subsection (a). It is surprising, in the writer's opinion, that jurisdiction over all grains was not left to the Wheat Board since this agency has administered
may have two unfortunate effects. It may tend to freeze resources in their present use, irrespective of changes in supply and demand. Secondly, it places a premium upon the organisation of an inordinately strong agricultural pressure group. If the government can be induced to support the price of a product at a level intended to maintain "an adequate and stable return" for those people engaged in its production, irrespective of the demand for the commodity, the allocative function of the price mechanism will have been seriously impaired.

Unlike the Wheat Board, the Agricultural Prices Support Board is not empowered to exercise direct control over production or delivery nor to make itself or any other body the sole marketing agency for any product. Such powers under the British North America Act reside with the provinces. However, the Wheat Board has been given authority under the National Emergency Transitional Powers Act to become the sole marketing agency for wheat and to control production. The Minister of Trade and Commerce has indicated that when this latter statute expires "the government will direct its attention to the form and authority under which the Board's powers may be further continued".¹ There does not then appear to be any valid reason why a similar authority could not be extended to the Agricultural Prices Support Board if the government so desired.

controls over these grains during the war and possesses the necessary administrative machinery. We have already criticised this method of supporting the price of potatoes. See above p. 212, footnote 1.

¹Hon. J. A. MacKinnon, op. cit., p. 4.
Apart from its effects upon the allocation of resources, this legislation might be criticized on the grounds that it seeks to attain a given objective by a roundabout and inefficient method. By no means all farmers producing a given product receive less than a minimum acceptable standard of living when the price of that product declines through unemployment and lack of purchasing power in the hands of the consumers. Payments tied to the price of the product will not accomplish the objective of placing income in the hands of those families who require help to maintain this minimum standard. On the other hand, it will permit farm families who are already enjoying a better than minimum standard to receive relatively large transfer payments.

The writer has no illusions regarding the acceptability to farmers of his proposal of a negative income tax during periods of depressions. Indeed farm leaders have criticized that clause in the Agricultural Prices Support Act which provides for direct compensatory (deficiency) payments to farmers. Mr. W. J. Parker, President of the Manitoba Wheat Pool, expressed this point of view very well in discussing a paper on the Agricultural Prices Support Act by Mr. J. G. Taggart, chairman of the Prices Support Board. Parker said in part:

Floor prices of the sort suggested by Mr. Taggart will be of little assistance in directing agricultural resources into uses most desired by the community. The suggested policy of making deficiency payments, determined by the difference between the average prices received and some prescribed minimum price, is seriously inadequate on the basis of improving the distribution of farm income. Supplementary payments made on the volume of

output distort the income distribution in favour of the large farmer. Supplementary or deficiency payments are distasteful to the individual farmer, in that having laboured diligently and intelligently and having produced a food product, he feels he has a right to a fair return, so that a deficiency payment is unnecessary. If, on the other hand, things come to that pass where the Government feels that on humanitarian grounds or for economic reasons of maintaining an overall income and purchasing power, or a combination of both factors, they determine to pay so-called "deficiency" payments, they should be for the purpose of improving the standard of living of all farm families. But I am afraid that in any form they will be considered direct relief.

2. The stabilization of individual farm income

One of the prime objects of a stabilization program is to reduce year to year fluctuations in the incomes of individual producers. Policies adopted to prevent fluctuations in the prices of farm products may actually increase the variability over time of the income of individual producers in the face of marked fluctuations in yield. Certain technological developments such as mechanisation may serve to reduce these variations in yield but in the Great Plains area of Western Canada climatic factors are still responsible for wide and, as yet, uncontrollable fluctuations in yield. Techniques of an economic nature are required to substitute a rather steady volume of annual sales for the present uneven volume. This applies particularly to plant products since the output of livestock is not nearly so dependent upon weather as are crops.

So far Canada has to all intents and purposes not advanced beyond the stage of investigating the feasibility of crop insurance. The Prairie Farm Assistance Act of 1939 is rather an alternative to relief payments than a system of crop insurance. It is based upon average yield within
the township rather than on the individual farm. Premiums paid are not adjusted for risks on specific farms but are uniform over the whole area of the Prairie Provinces. This has the effect of forcing farmers in better areas to subsidize those in poorer areas and also tends to permit firms to employ resources in enterprises where their marginal value product of such resources is less than the price of the product. The plan does not, moreover, stabilize the quantity of wheat which a farmer has available for sale from year to year but attempts, rather, to relieve severe cases of hardship resulting from crop failure.\(^1\)

The author of the most recent report on the feasibility of crop insurance finds grounds for a positive program but also maintains that present yields data are not adequate for the establishment of a program on an actuarial basis.\(^2\) The advantages of such a program are important

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\(^1\) The Act provides for a bonus payment of $2.50 per acre on one half of a farmer's cultivated acreage, not to exceed 200 acres, when the average yield in a minimum specified number of townships is less than 5 bushels per acre. A second provision applies to any year which the Governor-in-Council declares to be an emergency year. In such a year farmers in townships with an average yield of less than 12 bushels per acre may receive a payment on one half their cultivated acreage. This payment varies with average yield and, in the event the average yield for the township is between 8 and 12 bushels, with the price of wheat, providing the price of wheat is less than 80 cents per bushel. The costs of administration are borne by the Dominion Government, together with all other deficits. A levy of one per cent is collected on all wheat, oats, barley and rye marketed in the Prairie Provinces. Funds raised by this levy covered about 30 per cent of payments made to farmers during the five-year period 1939-44.

to any plan for stabilizing farm income. No time should be lost in establishing facilities designed to secure the necessary yield data. Any plan of crop insurance should be regarded as complementary to a scheme such as that suggested in Chapter VIII for maintaining minimum levels of farm income. The one will not replace the other.
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