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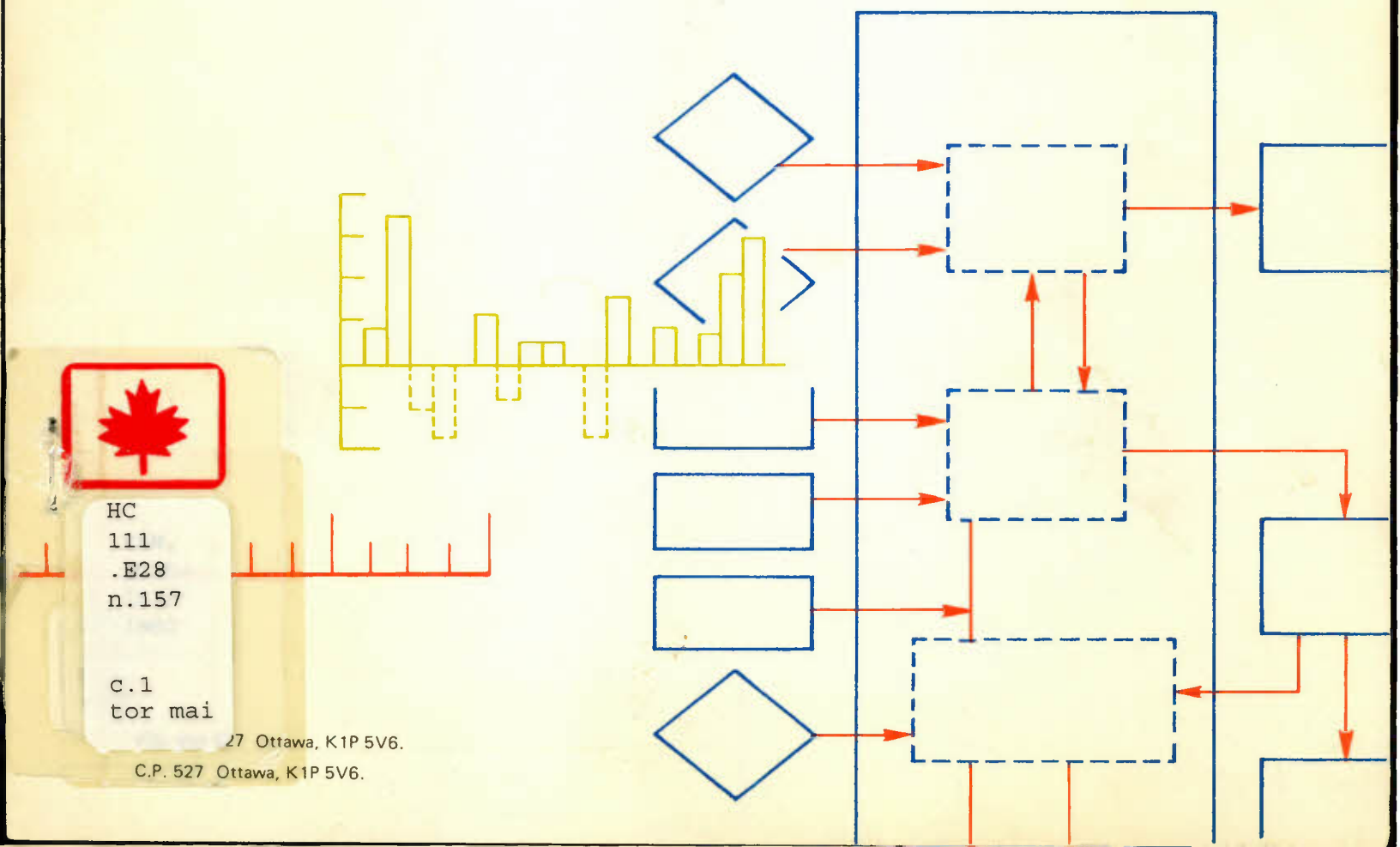

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DISCUSSION PAPER NO. 157

Farm To Food Prices

by

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prepared for

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Inflation and Productivity

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These results are the personal responsibility of the author, and, as such, have not been endorsed by the members of the Economic Council of Canada.

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FOREWARD

Farm prices and food prices occupy a significant share of the time that Canadians devote to discussion of public issues. Despite the prominence held by these issues, there remains a lack of public understanding on the process of food price formation, and a significant gap in solid economic evidence in many areas.

As a close observer of the public debate on food prices over several years, I was delighted to have the opportunity to produce a current review of food prices and their formation. Emphasis has been placed on developments since the Food Prices Review Board terminated in 1975 because that organization, for all of its weaknesses, did an outstanding job of communicating food industry issues to the public. An effort has been made to balance the discussion between the pre-farm, farm, middleman, and consumer sides of the food industry. And considerable effort has been devoted to shed light on some of the conventional wisdoms in the food industry which create misunderstanding.

My thanks is extended to the Economic Council of Canada and its protégé, the Center for the Study of Inflation and Productivity, for funding this project. Thanks are extended as well to a number of competent assistants who helped draw the information together. The contributions of Ms. L. Poyser and Ms. L. M. Loyns were essential to completing the task. In addition, the reviews of a number of Departments of the Government of Canada were most useful.

In acknowledging the contributions of others, however, and in in achieving publication in this form, I retain sole authorship and responsibility for all that the report contains.

R.M.A. Loyns
Winnipeg
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RÉSUMÉ ET CONCLUSIONS

La présente étude a été effectuée en vue d'obtenir, d'une part, des renseignements sur le processus de formation des prix des aliments au Canada et d'examiner, d'autre part, certaines des causes de la montée des prix dans ce secteur au cours des dernières années. Pendant les années 70, le prix des aliments a sans doute été l'un des éléments qui a contribué le plus, quoique de façon sporadique, à l'augmentation générale des prix au Canada. On a pu observer le même phénomène partout dans le monde; cependant, la situation au Canada s'est détériorée par rapport à celle des États-Unis, notre pays ayant connu un taux global de croissance des prix des aliments plus élevé que celui de notre voisin. Ce sont les forces internationales en présence dans le secteur des céréales qui ont provoqué la flambée des prix des aliments en 1972. Depuis lors, il n'y a eu qu'une seule année, soit 1976, où les hausses du prix des aliments n'ont pas dépassé celles de l'ensemble des prix de détail, telles que mesurées par l'indice des prix à la consommation. En 1978 et en 1979, les augmentations ont même dépassé les hausses les plus élevées que l'on avait connues au début des années 70.

La détermination des prix des aliments, au Canada, découle d'un jeu complexe d'éléments, d'origine tant nationale qu'internationale. Il n'est pas facile et il peut s'avérer coûteux de tenter de réduire considérablement le taux d'augmentation du prix des aliments ou encore, de supprimer la variation entre les prix à la production et les prix à la consommation. Bien que cette argumentation puisse sembler erronnée et les faits totalement contradictoires, il faut admettre que le marché canadien des aliments fonctionne trop bien pour qu'il soit facile et peu coûteux de répondre à répondre à toutes les exigences publiques, politiques, sociales et économiques dans ce domaine. Par exemple, à moins d'une participation financière massive de la part de l'État, on ne peut à la fois augmenter les prix versés à l'agriculteur et les abaisser pour le consommateur. Si nous voulons profiter des avantages d'un régime de marché, y compris ceux du commerce international, les prix des aliments doivent fluctuer. Si le régime devient plus concurrentiel, les fluctuations augmenteront. De même, à mesure que s'accroît l'échelle d'exploitation permettant d'atteindre un niveau efficace de production sur les plans de l'exploitation agricole, de la transformation des produits, du commerce de détail et de la prestation de services gouvernementaux dans ce secteur, il devra se produire une certaine croissance de la dimension des entreprises et une certaine "dépersonnalisation" de l'industrie alimentaire si l'on veut profiter des avantages qu'offre la production à grande échelle. Pour atteindre certains des objectifs publics dans ce secteur et modifier considérablement l'évolution des prix, on devra donc faire face à des objectifs contradictoires et se résoudre à d'importants compromis.

Tout comme le reste de l'économie canadienne, l'industrie des aliments est soumise à la fois au jeu de la libre concurrence, à une réglementation gouvernementale, à une protection tarifaire et à certaines dispositions de réglementation des prix. Dans l'ensemble, l'industrie canadienne des aliments obéit davantage aux mécanismes du marché que ne

le font les mêmes industries dans la plupart des pays du monde et certaines autres industries canadiennes. Cependant, les mesures gouvernementales adoptées au cours des années 70 ont eu pour effet d'accorder une plus grande protection aux produits agricoles de base et de soustraire un certain segment de l'industrie aux mécanismes du marché. Sur certains marchés (produits laitiers et avicoles, blé utilisé pour la production locale de pain), la prise de décision dans le secteur public l'a emporté sur celle de plusieurs niveaux du secteur privé et un régime de prix réglementés a remplacé celui des prix du marché. Le programme de contrôle des prix et des salaires, instauré au Canada en 1975, s'appliquait aux diverses étapes de la chaîne de production des aliments mais excluait les produits agricoles proprement dits. Étant donné que la plupart des majorations de prix survenus au cours des années 70, y compris celles que l'on a connues pendant la période des contrôles, émanaient des produits agricoles, il ne faut pas s'étonner que le programme anti-inflation n'ait pas permis d'obtenir ce que le public considère comme des taux d'augmentation "raisonnables" des prix. Bien qu'il ne fasse aucun doute, aussi bien au Canada, aux États-Unis que dans d'autres pays, que le contrôle des prix des aliments ne constitue pas une mesure efficace, il n'en demeure pas moins que l'on réclame périodiquement d'y avoir recours.

Pour en arriver à décrire le processus de la détermination du prix des aliments, notre étude examine divers aspects de la statistique du prix des aliments et remet en question certaines postulats traditionnels en ce domaine. Parmi les questions abordées, certaines ne le sont que dans le but de fournir des renseignements; par contre, d'autres sont liées aux politiques gouvernementales et influent donc directement sur la détermination du prix des aliments. Il ressort de notre étude que plusieurs des mesures gouvernementales destinées à stabiliser le prix des aliments ont échoué. Les contrôles de prix en vigueur aux États-Unis entre 1970 et 1974 ont provisoirement exercé des effets bénéfiques mais ils ont également créé de graves distortions. Par exemple, les producteurs canadiens et américains de boeuf subissaient encore en 1976 et 1977 les conséquences des contrôle américains appliqués en 1972. De même, il se peut que le programme canadien de contrôles ait ralenti dans une certaine mesure, depuis 1975, la montée des bénéfices des entreprises de produits alimentaires. Toutefois, ce facteur n'a pas eu une forte incidence sur le prix des aliments, puisque les bénéfices influent généralement peu sur les variations de prix et constituent une composante encore moins importante de l'augmentation des prix des aliments. Les programmes de subventions instaurés à la hâte en 1973 ont également permis de retarder certaines augmentations de prix; cependant, lors de l'interruption du programme, on a pu assister à une montée des prix de détail. Les efforts multiples en vue de stabiliser les prix des produits agricoles au cours des années 70, dont on a vanté publiquement les avantages, n'ont pas réussi à empêcher la hausse du prix des aliments. En fait, ce sont les produits soumis à une politique de prix réglementés qui ont contribué à l'augmentation générale des prix au Canada. Dans de telles circonstances, on doit sérieusement s'interroger sur l'utilité de tenter de réduire les fluctuations de prix à court terme.

Sur le plan de l'augmentation des prix des aliments au cours des années 70, la situation du Canada s'est détériorée par rapport à celle des États-Unis. Ainsi, au cours de cette période, la politique

agricole américaine s'est fondée davantage sur les principes d'une économie du marché, contrairement à la tendance qu'on a pu observer au Canada. Le Canada a également introduit des programmes fédéraux et provinciaux permettant d'éponger, dans l'éventualité d'une chute des prix, certaines des pertes subies par les agriculteurs. Ce sont les marchés réglementés tels ceux des produits laitiers et de la volaille, qui ont contribuée le plus à la détérioration de la situation; par ailleurs, la dévaluation de notre dollar en 1977 et 1978 a également joué un certain rôle. Les produits céréaliers et d'élevage faisant l'objet d'un mécanisme de protection du producteur ne sont assujettis à aucun prix plafond. Par conséquent, la stabilité des prix des aliments fondée sur une telle politique de prix des produits agricoles est artificielle, sinon inexistante. La structure fondamentale de l'organisation de l'industrie canadienne des aliments rendent cette conclusion inévitable.

Étant donné que les hypothèses de stabilité des prix sur lesquelles reposent certaines politiques agricoles ne semblent pas pouvoir se vérifier d'une façon empirique, il en découle qu'il est également impossible de soutenir que les revenus agricoles sont bas. Il n'y a aucun doute que les prix et les revenus agricoles sont instables. Cependant, l'analyse des niveaux de revenus agricoles en termes absolus ou par rapport à ceux des autres secteurs soulève de sérieux problèmes aux plans des concepts et des mesures. Il n'y a pas de doute que les agriculteurs canadiens s'en sont bien tirés au chapitre des revenus et des gains de capital au cours des années 70. Une telle affirmation peut s'avérer contraire au sens commun; il se peut également qu'il faille invoquer, dans un tel cas, d'autres arguments pour justifier la mise en oeuvre de certaines politiques agricoles. Il s'agit là cependant d'observations très pertinentes touchant la question des prix des produits agricoles et alimentaires.

Certaines des mesures adoptées en matière de politique agricole se fondent sur le principe voulant que l'on assure un plus juste équilibre au plan du pouvoir de marché entre les agriculteurs et ceux avec lesquels ils doivent transiger. Il est évident que les agriculteurs ne sont pas soumis au même type de concurrence que celle que connaissent les entrepreneurs des secteurs de la fabrication et de la distribution. Les différences se situent à deux niveaux : l'industrie agricole non réglementée est très concurrentielle alors que les secteurs agricoles assujettis à des prix réglementés ne sont pratiquement pas soumis aux pressions de la concurrence. Les secteurs appelés à transiger avec l'industrie agricole font face à une situation concurrentielle qui varie et dont les caractéristiques se situent entre les deux extrêmes mentionnés ci-dessus. Les producteurs de grains de provende, d'une part, et les distributeurs de machinerie, de pétrole, et d'engrais, d'autre part, font partie de secteurs qui se caractérisent par une faible concentration et une forte concurrence. Par ailleurs, le raffinage du pétrole et la production de machinerie et d'engrais sont des secteurs à concentration élevée, ce qui tend à restreindre la concurrence au plan de la production, indépendamment des conditions qui peuvent exister au niveau de la distribution. De nombreux segments de l'industrie de la transformation et de la distribution des aliments se caractérisent aussi par une concentration allant de modérée à élevée. On relève aussi une très forte concentration chez les détaillants d'aliments, notamment au niveau local.

Les répercussions de niveaux élevés de concentration aux divers paliers de la chaîne alimentaire sont malheureusement moins bien connues

que ne le sont plusieurs des problèmes propres à l'agriculture. Dans l'ensemble, les bénéfices des entreprises de produits alimentaires ne semblent pas de beaucoup supérieurs à ceux d'autres secteurs comparables. Cependant, il se peut que cette concentration du pouvoir de marché suscite des problèmes au plan de la productivité, de la commercialisation ou de l'établissement des prix, c'est-à-dire qu'il en découle des coûts et non des profits plus élevés. En outre, des mesures comme les contrôles exercés à la frontière, les dispositions interprovinciales sur les prix et l'établissement des prix en fonction des coûts de production en vue de protéger l'agriculteur peuvent réduire la concurrence entre les producteurs agricoles, les entreprises de transformation et les détaillants, entraînant ainsi une détérioration sur le plan de la performance en matière de prix. Toutes ces questions touchant le secteur non agricole de l'industrie des aliments jouent un rôle important dans l'évolution des prix et doivent être sérieusement examinées si l'on veut en arriver à la meilleure performance possible des prix des aliments.

Toutes les conclusions énoncées ci-dessus sont liées directement aux questions de l'inflation et de la productivité au Canada. Ainsi, si l'on considère les objectifs du programme anti-inflation de 1975 comme un ensemble valable en matière d'objectifs économiques et de stratégie industrielle, il devrait en découler un marché des aliments plus concurrentiel, plus souple et davantage soumis aux forces du marché. Cela entraînerait vraisemblablement une plus grande variabilité des prix des aliments à court terme, mais en réduirait très certainement les hausses à long terme. Cependant, la politique anti-inflation a en quelque sorte réservé un traitement spécial au secteur de l'alimentation, notamment au niveau de l'exploitation agricole. Avant même la mise en oeuvre du programme anti-inflation et tout au long de son application, l'industrie agricole canadienne a bénéficié d'un accroissement sensible des fonds et des engagements financiers de la part du gouvernement. Cela n'a toutefois pas entraîné la stabilisation des prix, ni jeté les bases en vue d'y arriver. Dans les secteurs réglementés et donc les moins soumis à la concurrence, on a pu observer certaines des plus fortes hausses de prix. Par ailleurs, la productivité dans l'industrie canadienne de l'agriculture montre des signes d'essoufflement et d'importants secteurs fonctionnent bien en deçà de leur pleine capacité. Enfin, la productivité pourrait s'accroître dans les secteurs de la transformation et du commerce de détail.

Ces conclusions peuvent sembler ne déboucher sur aucune solution. Devons-nous accepter que les prix des aliments, qui semblent fondamentalement instables, augmentent globalement plus au fil des années que ceux des autres produits ? Devrait-on soumettre le prix des aliments à des contrôles ? A vrai dire, il n'y a aucune réponse facile à ces questions. Les prix des aliments ne peuvent être abaissés ou ramenés à des niveaux "acceptables" par le biais de manoeuvres politiques ou d'ordonnances bureaucratiques. Par ailleurs, à moins que nous ne soyons disposés à modifier sensiblement la structure, le contrôle et le fonctionnement de l'industrie des aliments et à accroître considérablement le niveau des subventions gouvernementales, les prix des aliments au Canada continueront à fluctuer. La variabilité n'est pas seulement inhérente aux prix des aliments, mais caractérise également le régime de marché à tous les paliers de l'appareil économique.

Il existe un certain nombre de possibilités permettant de s'attaquer aux augmentations des prix à long terme. L'une de ces options

serait de subventionner le producteur ou le consommateur : les tentatives faites jusqu'ici révèlent qu'un tel projet est très coûteux et ce, même si l'on se contente de réaliser des avantages modestes et provisoires. Une deuxième possibilité consisterait à réglementer davantage les prix des produits agricoles et à étendre les contrôles aux autres paliers de l'industrie des produits alimentaires. Il est difficile de favoriser une telle option à la lumière des expériences effectuées au cours des dernières années. L'autre possibilité consisterait à renforcer la concurrence, à s'efforcer d'améliorer la productivité et réduire les rigidités structurelles dans l'ensemble de l'industrie de l'alimentation. Cette dernière option ne permettra pas d'atteindre la stabilité des prix mais assurera qu'à long terme, les prix des aliments seront aussi bas que le permettra le marché et que l'industrie de l'alimentation sera aussi productive que le permettront ses ressources.

SUMMARY AND CONCLUSIONS

This study was undertaken to provide information on the process of food price formation in Canada and to review some of the sources of food price increases in recent years. Food prices have certainly been a leading, although sporadic, contributor to the general rate of price increase in Canada throughout the seventies. This has been a common occurence around the world, but at least in relation to the United States our domestic food price performance has deteriorated in the sense that our overall rate of price increase has been greater than in that country. International forces at work in the grains sector initiated the rapid acceleration in food prices in 1972. Since then there has been only one year, 1976, when food price increases have not exceeded the aggregate of retail price changes as measured by the Consumer Price Index. In 1978 and 1979, food price increases have exceeded the largest advances which had been recorded in the early seventies.

Food price determination in Canada is the result of a complex set of forces which have both domestic and international origins. Substantially reducing the rate of increase in food prices, or removing variability in farm and food prices, are not tasks that can be easily or inexpensively accomplished. Although the logic may appear perverse, and the evidence may appear entirely contradictory, it is a fact that the Canadian food system performs too well for there to be easy and inexpensive answers to all of the public, political, social and economic demands placed upon it. For example, unless massive amounts of public money are injected into the system, food prices cannot at the same time be raised for farmers and lowered for consumers. If we are to achieve the benefits of a market system, including international trade, then food prices will be variable. If the system is made more competitive, it will produce greater variability. Similarly, as the scale of operation for efficient production increases in farming, in processing, in retailing, and, indeed, in providing government services to the food industry, enterprise growth and impersonalization of the food industry will have to occur if the benefits of larger scale production are to be achieved. Consequently, the task of achieving some of the public objectives related to the food industry and significantly altering food price performance involves conflicting goals and significant trade-offs.

The Canadian food system, like the rest of the Canadian economy, is an admixture of free enterprise, government regulation, trade protection, and administered pricing arrangements. In general, the food industry in Canada is relatively market oriented, particularly in comparison with most countries in the world and with some Canadian industries. Government action in the seventies, however, has been responsible for further protecting basic agriculture and insulating parts of it from market pressures. In some areas like dairy, poultry products, and wheat used in domestic bread making, public decision-making has supplanted several levels of private decision-making, and market prices have been replaced by administered prices. The wage and price controls program

initiated in Canada in October 1975 applied to food products only before and after the farm gate. Since much of the food price pressure which has been experienced through the seventies, including that of the controls period, originated in farm prices, it is not surprising that the anti-inflation program did not accomplish what the public would accept as "reasonable" rates of price increase. Despite the overwhelming evidence here, in the U.S., and in other countries that food price controls do not work, pressure is periodically heard for their imposition.

In attempting to convey the process of food price determination, this study examines elements of the "food price numbers game" and challenges a few conventional wisdoms on food price issues. Some of these are of little importance beyond their informational role. Others are, however, fundamental to public policy and are, therefore, fundamental to food prices themselves. An overriding conclusion throughout the study is that several government measures taken ostensibly to achieve food price stability have failed. Price controls in the U.S. between 1970 and 1974 produced some temporary relief but also caused some serious distortions. For example, U.S. and Canadian beef producers in 1976 and 1977 were still suffering some of the consequences of U.S. controls applied in 1972. The Canadian controls program may have held down food company margins and profits to some extent since 1975. However, the impact of this on food prices has not been large because profits are generally a small component of price spreads and a smaller component of food price increases. Similarly, the subsidy programs hurriedly initiated in 1973 postponed some price increases, but ultimately when the subsidy was removed the increase was reflected in higher retail prices. Even the high level of activity in agricultural policy in the seventies directed toward farm price stability, and sold publically on the basis of its food stabilizing contributions, has failed to hold food prices down. If anything, commodities subject to administered pricing in Canada have added to price increase. The real value of removing a small degree of short-term price variation under these conditions must be seriously questioned.

If the rate of food price increase is considered, Canada's performance relative to the U.S. has worsened in the seventies. This is significant from several standpoints. During this period U.S. farm policy moved in the direction of more market orientation while Canada opted for less. Canada has also introduced federal and provincial programs which underwrite some of the farmers' losses in the event of farm price declines. Much of our worsening position in relation to the U.S. can be traced directly to the regulated commodities such as dairy and poultry, and some can be traced to the declining value of the Canadian dollar in 1977 and 1978. The livestock and grain products which have producer stop-loss measures in place have no upper limit on prices. Consequently, the food price stability which is supposed to have farm price origins is elusive if not non-existent. The basic structure and organization of the Canadian food industry and the Canadian economy make this conclusion inevitable.

As the food price stability arguments underpinning some of agricultural policy do not appear to stand up to empirical testing,

neither does the argument that farm incomes are low. There is no doubt that farm prices and farm incomes are variable. But analysing farm income levels in absolute terms or in relation to the rest of Canadian incomes involves complex conceptual issues and serious measurement problems. What is clear is that in terms of incomes and capital gains, Canadian farmers have fared very well in the Seventies. To point this out, and to suggest that different arguments are required to justify some farm policies, may be contrary to the conventional wisdom on Canadian farmers. It is, however, a very relevant piece of farm-to-food price information.

Some of what has been done in farm policy is justified on the grounds that it will provide a more reasonable balance of market power between farmers and those with whom they deal. There is no doubt that competitive conditions for farmers are different from those of the majority of businessmen in the industrial or distributive sectors. The differences take two very distinct forms: unregulated agriculture is highly competitive; those areas of farm production which have administered prices are allowed to conduct their business free from most competitive pressures. Competitive characteristics of the sectors with which farmers deal are variable and somewhere in between these extremes. Feed manufacturing, machinery, petroleum and fertilizer distribution are generally unconcentrated and reasonably competitive. However, petroleum refining, machinery and fertilizer manufacturing are highly concentrated, and this limits competition on their output irrespective of how competitive distribution may be. Many segments of food processing and distribution are also moderately to highly concentrated. Food retailing, particularly at the local level, is very highly concentrated.

The effect of significant levels of concentration at various levels of the food chain is, unfortunately, not as well documented as are many problems or issues at the farm end of the food industry. Food company profits generally do not appear to be significantly higher than profits for similar non-food sectors. But the impact of concentration of market power may show up in productivity problems and in marketing or pricing practices, i.e., higher costs, rather than in high profits. In addition, measures such as border controls, interprovincial pricing arrangements and cost-of-production pricing undertaken to protect farmers may reduce competition among farm suppliers, processors and retailers and thereby cause price performance to deteriorate. Each of these issues on the non-farm portion of the food industry is extremely important to food price behaviour and requires serious consideration if we are concerned about achieving the best possible food price performance.

All of the foregoing conclusions are important to questions of inflation and productivity in Canada. If the objectives of the 1975 anti-inflation program can be taken as a generally valid statement of economic objectives and industrial strategy, they would imply a more competitive, flexible and market oriented food market. This would probably produce some greater short-run variability in food prices but it would very decidedly reduce long-term increase. The anti-inflation policy, however, singled out the food sector, especially farming, for

special attention. Before and during the period of the anti-inflation program substantially increased public funds and commitments were channelled toward Canadian agriculture. But food prices have not stabilized, nor is the basis laid for their stability. Those sectors where regulations have caused the greatest departure from competitive, market pricing have produced some off the largest price increases. Moreover, productivity in Canadian agriculture shows signs of tapering off, and important areas of Canadian agriculture are operating considerably under capacity. Finally, there are signs that productivity in processing and retailing could be improved.

These conclusions may appear to produce a scenario of hopelessness. Must we accept food prices which seem inherently unstable and which, collectively, rise more over time than other prices? Should food prices be controlled? The simple truth is that there are no easy answers to these questions. Food prices cannot be brought to "low" levels or to "acceptable" levels by political manoeuvering or by bureaucratic fiat. Morevoer, unless we are prepared both to alter remarkably the structure, control and operation of the food system and to increase substantially the level of public support to it, Canadian food prices will continue to be variable. Variability is not only a characteristic of food prices, it is a characteristic of the market system of economic organization.

A number of alternatives exist for dealing with longer-term food price increases. One option is subsidized producer or consumer prices: the efforts to date illustrate that the costs of these efforts for achieving even modest and temporary benefits are enormous. A second option involves more regulation of farm prices and extension of controls into other components of the food chain. It is difficult to be optimistic about this alternative in view of the growing experience during the past few years. The other major alternative is to sharpen competitive forces, strive to improve productivity, and work to reduce structural rigidities in the entire food system. This option will not achieve price stability, but it will assure that in the long-term, food prices are as low as conditions permit and that the Canadian food industry is as productive as our resource base allows.

I INTRODUCTION

The decade of the seventies around the world and in Canada has been characterized by very troubled economic times. There has been a significant realignment of dominant economic powers, accompanied by a major realignment of international currency values. Energy costs have escalated from 1973 onward. Unemployment levels have risen and appear to be established at new plateaus. And there are fears, if not the reality, that the growth in living standards with which we became accustomed in the sixties cannot be maintained in the late seventies or into the eighties.

Underlying all of these developments, both helping to cause them, and partially caused by them, have been general price inflation and rapid increases in food prices. Public concerns over declining international prominence, over a devaluating currency, or over very unfavourable unemployment statistics are one thing but, alarming as they may seem, they have only indirect effects on the majority of the public. Inflation and rising food prices are quite another kind of concern. They affect everyone, not always adversely or uniformly in economic terms, but always directly and usually immediately.

In Canada, the public policy approach to these two sources of unacceptable economic performance has been varied. For several years, the policy for reducing inflationary pressures involved a combination of public dialogue, threats, and modest efforts at fiscal and monetary management. These efforts were constrained by public expectations that the tide of affluence experienced in the sixties could and would continue. They were also constrained by the perception of governments, undoubtedly conditioned by public expectations, that the discretionary component of public finance and government action was extremely small. Canada resisted the precedent, and perhaps the advantage of timing, of a substantial controls program implemented in the United States in 1971. It was not until October 14, 1975 that the Government of Canada introduced its own anti-inflation program which included substantially increased fiscal restraint and a form of wage and price controls. Provincial governments co-operated in the anti-inflation program and some adopted their own restraint measures. Three and one-half years after introduction of the program, inflation has somewhat abated and public expectations appear to be somewhat modified. Inflation is, however, still a major economic force in Canada and in the rest of the world. As we move into the post-controls era there are concerns that prices may take off again.

In some respects, food price increases have been of even greater significance during the seventies. Following substantial difficulties in the agricultural sector from 1968 to 1971, which produced large reductions in farm incomes and small reductions in retail food prices, farm and food prices began to climb in late 1972. Since then, food price increases have consistently risen faster than the indicators of general price increase. For example, between 1971 and November 1978 when it was revised, the

overall Consumer Price Index rose approximately 80 per cent while its food component rose about 115 per cent. Efforts at combatting food price increases have been less dramatic than general anti-inflation policy, and in some instances public policy initiatives in the agricultural sector have been in conflict with the objectives of reducing persistent upward pressure on food prices.

The initial response to accelerating food prices in early 1973 was a House of Commons Committee review and report.[1] One of its recommendations was the establishment of a review agency and as a result the Food Prices Review Board (FPRB) was appointed in May 1973. In addition, because the Government (or governments) seemed ill-equipped to deal with conditions unfolding in the food industry, several expensive but relatively ineffective subsidy programs were instituted throughout 1973. These were intended to ameliorate or postpone selected price increases. Subsequently all of these programs, except some which directly affect the agricultural sector, have been withdrawn. The price controls program initiated in 1975 was applicable only to margins on food products after they left the farm gate.

Throughout this period, governments have been very active in providing policies, legislation, and programs to support the farming sector. There has been a major effort at achieving greater stability in farm prices and incomes, and this period will probably be seen to be the most active legislative era in Canadian agricultural history. The increases in support or commitment to the agricultural sector have been substantial; in 1971-72 combined federal and provincial expenditures on Canadian agriculture were $586.9 million; by 1976-77, they had increased to $1.3 billion, with financial commitments through the many stabilization programs representing additional large sums.[2] Much of the public justification given for these policies and programs has been attributed to consumer benefits, as Mr. Whelan, federal Minister of Agriculture, described in a 1975 press release announcing implementation of the Agricultural Stabilization Act (ASA):[3]

> "It (the Agricultural Stabilization Act) is a long step forward in the development of a stable agricultural industry. Stability in food industry is important not only for the farmer, but even more so for the consumer."

In June 1977, the Government of Canada responded to pressures and to growing concern over food price conditions by announcing its National Food Strategy. To date, little substance to that strategy is evident in the public domain. More importantly, food price increases accelerated in the latter half of 1978 and into 1979 and there is a strong likelihood that food price increases will exceed average price increases in the Canadian economy for at least the next two to three years. In addition, adverse crop conditions in any of the major grain trading nations could quickly trigger further surges in food prices as has been evidenced by advances in grains markets in 1979.

The Purpose of This Report

In its very limited life as purveyor of objective and comprehensive information on the Canadian food industry, the Food Prices Review Board reinforced a fundamental but important tenet of western democratic capitalism -- that an informed public is better prepared and willing to cope with a hostile economic environment than an ill-informed, doubting and uncertain public.

The FPRB was disbanded with the introduction of the Anti-Inflation Board (AIB) in 1975. The last of its publications were released in 1976. With few exceptions, the information base established by the Board has not been extended or even maintained, but a number of things have occurred since late 1975, not the least of which has been continued, even increased, upward pressure on food prices. As a consequence, this study was commissioned and the report prepared in an effort to help reduce the information gap that exists on food price analysis today. The scope of the report was designed intentionally to be broad and as a result the depth of analysis has had to be limited. The approach taken was to view the food industry in its full scope, i.e., before and from farm production through to consumer prices. The attempt was made to key on the major issues in food price determination and follow some of the price determination effects through the system. The analysis concentrates on neither primary production nor on the consumer sector. The underlying objective of this study is to produce relevant information on issues of significance in the industry. Consequently, the report is neither intensive nor exhaustive but it does encompass the attempt to communicate on issues which confront all of us in Canada as we ponder farm-to-food price questions.

II INFLATION, CONTROLS AND CANADIAN FOOD PRICES

The purpose of this section is threefold. The first is to discuss the relationship between food prices, inflation, and inflation measurement. This area remains one which manages to generate more than its share of public controversy, and is characterized by number and index manipulation, i.e., the "numbers game of inflation measurement".[4] The second objective is to deal with price performance prior to and during the Canadian controls period. Of particular significance here is a comparison of the pre- and post-controls experience in the United States. The U.S. controls program was initiated in 1971, and was in place during the rapid price escalation period of 1972-74, at a time when Canada was still using the "jaw-boning" approach. Finally, this section identifies some specific commodities which have had particularly significant price behaviour. This information is used to direct analysis and discussion later in the report.

Many may argue that comparisons with the price experience in the U.S. are irrelevant, or at best, poor economic methodology. These arguments are rejected here on several grounds. First, Canada and the U.S. are both major food exporters with relatively open agricultural and food economies; food prices in both countries are heavily influenced by world grain, oilseed and livestock conditions, and by international currency values. Second, both countries have had very similar structural characteristics in their food production, processing and distribution sectors, and have been subject to very similar technological developments over the years; both countries are considered to be long in food production resources and to be highly productive. These similarities imply that prices in Canada and the U.S. should move closely together in the absence of major structural changes (such as government intervention) and it will be shown that this has in fact occurred. As the Food Prices Review Board said in 1974:[5]

> "Thus, if the U.S. food price experience during the controls period had been significantly better than in Canada, a benefit of controls would be apparent. On the other hand, if there is either little difference in food price performance between the two countries, or a relatively better Canadian experience, the effectiveness of controls applied to the food sector in a limited fashion as was done in the U.S. may be questioned."

Finally, much of Canada's farm policy in the seventies has been directed toward modifying the vagaries of farm and food markets. Presumably, benefits of this approach should show themselves in better price performance in Canada than in the less-regulated U.S. food market.

Food Prices and Inflation

The introductory comments in the first section discussed the phenomena of "inflation" and "food price increase" separately. The term "food price inflation" was not used. This use of terminology is deliberate.

It is important to recognize that all increases in food prices are not necessarily inflationary. The purpose of this section is to develop a few arguments for keeping these terms separate. At the heart of these issues is the question of how the conventional price indicators, in particular the Consumer Price Index (CPI), are used to monitor inflation.

Subject to a few statistical limitations and practical problems, tracking the path of final prices in the economy is relatively easy. Tracking the path of retail (or wholesale, or farm) food prices is even easier. These statistical exercises, and many more, are routinely carried out by the official statistical agencies of modern economies. But identifying and monitoring "inflationary price" movements is much more difficult. There is no unique or adequate measure of inflation, and not even agreement on a precise definition of "inflationary price change." The Prices and Incomes Commission (PIC) in the early seventies struggled with this problem:[6]

> "Unfortunately there exists no fully adequate measurement of aggregate price change in the Canadian economy and further, there are important reasons for not equating measured aggregate price change (increases or decreases) with inflation or deflation."

Similarly:[7]

> " ... the CPI and IPI are not amenable to identify inflationary price movements. Inflationary price movements are the manifestation of underlying price changes common to all prices. Inflation consists of continuous, common movements of prices, not the short, irregular movements so often exhibited by the major price indexes. It should be emphasized that inflation is a process of cumulative, common price changes, not the changes in the price levels that the CPI are intended to represent."

More recently, the Centre for the Study of Inflation and Productivity (CSIP) wrestled with the same problem:[8]

> "Most of us judge the rate of inflation on the basis of our personal experiences with prices of goods and services we purchase regularly. Hence the importance we have come to attach to movements in the Consumer Price Index published monthly by Statistics Canada.
>
> Yet, in many ways, the CPI is less than a fully satisfactory measure of inflation."

The major problem in using the conventional indexes is that they measure all price changes (positive and negative, whatever the source) and combine them into a single index according to statistical conventions. Unless we are prepared to identify as "inflation" any increase in measured prices,

the conventional indexes simply manifest any and all forces causing prices to change, including but certainly not limited to inflationay pressures. As the author has pointed out on a previous occasion:[9]

> "It is highly unlikely that a single index, regardless of its conceptual and statistical qualities, could reflect the complex forces which operate to produce inflationary price change."

Food prices are particularly troublesome in this regard. Probably more than any other major sector of our economy, food prices are variable and highly cyclical. There are a number of reasons why this is so, most of which go back to the raw form of food -- agricultural production. Agricultural prices vary partly because agricultural production is difficult to control. In addition, agricultural prices vary because to overall demand for, and supply of, agricultural commodities are relatively unresponsive to changes in prices in the short-run. Because this is so, small changes in production may cause large changes in prices. External influences on the major Canadian agricultural commodities (grains, cattle, and oilseeds) and the interdependency on the production side with all of our significant products means that an external shock on production or international demand (for example, frost, drought, disease, famine and petro-crisis) ultimately ripples its way through most Canadian farm products and most food prices. Similarly, a significant change in Canadian exchange rates will work its way through Canadian farm and food prices.

The structure of Canadian (and U.S.) agricultural production for the major commodities also contributes to cyclical variation. A significant movement in farm prices, not associated with a corresponding change in costs, can be expected to produce a rather predictable and identifiable opposite movement in farm prices at a future date. The time required for this cyclical price swing depends upon the length of the production period for the commodity. The precision with which this cyclical change occurs remains dependent partly upon international conditions, in particular more shocks. However, some form of the cycle will take place if market forces are allowed to operate. Predictably the cycles for all commodities do not coincide because the forces initiating change may occur at different times, or different lengths of time may be required to produce their effects. For example, an abrupt decrease in grain prices may signal a decrease in grain production thereby initiating a downturn in the grain cycle immediately, but the impact of low grain prices on increasing livestock production may require months or years. As a consequence of these characteristics of agricultural prices, a measured increase in food prices need not signal more inflation any more than a measured decrease necessarily signals reduced inflationary pressures.

This process of cyclical behaviour in farm and food prices has led to recognition that the CPI may not be an adequate measure of inflation, and to several interesting debates on how to treat this problem. During the sixties when the present inflation problems were in their embryonic phase, the Economic Council of Canada attempted to measure inflation by removing components of the CPI which were considered to have

been subjected to unusual non-inflationary economic conditions. This involved dropping food from the index because it was argued that food prices in Canada were determined outside our borders, independently of inflation.[10]

A similar effort to remove from the CPI "... some products whose prices vary widely and erratically for reasons not related to ongoing inflationary pressures in the economy"[11] was attempted by CSIP. What that agency did was remove three food categories - meat, fresh fruit and fresh vegetables accounting for about 7 per cent of the total - from the Consumer Price Index. While the long-term trends since 1967 of the revised version (CPI-2), the excluded elements, and the CPI itself do not differ appreciably, there were relatively brief intervals within the period when short-term fluctuations in prices of meat, fresh fruit and fresh vegetables made the CPI unrepresentative of what was happening to prices of the other 93 per cent of the commodities and services which make up the index. CSIP argued that the use of CPI-2 and a separate focus on the excluded food items gave a more realistic view of basic inflationary forces over the period with which it was concerned. However to argue as some have done that this is a better continuing measure of inflation, or that it is anything more than the CPI excluding three components, is at best tenuous.

Another side of the food price inflation argument showed itself in late 1977 and 1978 when Statistics Canada announced plans to revise the CPI. Economists and statisticians accept that for a "base weighted" index like the CPI to be kept current, relevant and as accurate as possible, the weights have to be kept as up-to-date as feasible.[12] However, a change in weights will, after the revision, produce a different pattern of price change depending on the extent of measured price change on the components and the significance of the change in the weight. This is the dilemma of indexing which has for some time been known as the "Index Number Problem". Since food is a major but (relatively rapidly) declining component of the CPI, and since its prices have been increasing considerably faster than other components, the revision was argued (correctly) to reduce the measured rate of price change. Consequently, the revised index would show a slower rate of price increase than the former index with different weights.

Interest groups therefore objected to the revision. It has been suggested that the revision was undertaken to show a lower "rate of inflation". Labour argued that they would now be inadequately compensated for inflation by the application of COLA (Cost of Living Adjuster) clauses. Farmers, processors and food distributors argued that even with the revision, food was still too important in the CPI, and that they were being unjustifiably blamed for contributing to inflation; for them a lower weight on food would seem to produce less inflation and a more equitable distribution of the blame for its existence. In fact, what these groups have discovered is what has been known about price indexes for a long time; revising index weights in order to keep the index currents can alter the pattern of measured price change. Large and low income families have known for a long time that when food prices change faster than other prices, the change in their cost-of-living exceeds changes in the CPI. The CPI does not accurately reflect changes in the cost of maintaining a constant standard of living over a long period or to all groups in the economy.

These are some of the "numbers games" which are associated with measurement of inflation. They arise when index numbers, in particular the CPI, become institutionalized in the economy. Basically, they are measurement problems and debating points in public issues but they have important implications for many public policy discussions and for some economic decisions. They are also a small but significant part of understanding many of the farm-to-food price issues which confront us every day.

Canadian Prices in the Seventies

On October 14, 1975, the Prime Minister announced Canada's new anti-inflation policy. The next day, the Minister of Finance spelled out its details in the House of Commons. The anti-inflation policy consisted of four major program components:

1. fiscal restraint, reductions in government expenditures, and changes in monetary policy;
2. limitations on wage and price increases, and general price increase targets;
3. an expression of intention to reduce "structural rigidities" in the Canadian economy, and strengthening of competitive forces by completing revision of the Competition Act; and
4. selective policy measures for the housing, energy and food sectors.

Within this program, farm gate prices and farmers were exempt from the wage and price controls, but labour and food businesses beyond the farm gate (except for small business exclusions) were subject to controls. As a consequence, the food and beverage sectors became subject to controls as applied to the other processing and manufacturing sectors.

The remainder of this section, which discusses major developments in food prices in the seventies, concentrates on conditions just prior to and during the anti-inflation program. It also identifies recent price performance as we move into the post-controls era. A portion of the analysis is devoted to comparisons with U.S. price behaviour, based upon movements in the Consumer Price Indexes in the two countries. Differences in weighting are ignored because they are not considered significant to differences in the performance of the indexes.

Charts 2-1A and 2-1B trace out the path of annual average retail prices, as measured by the CPI, in Canada, and shows how annual food prices have moved. Chart 2-2 provides the same information but in the form of month-to-month changes. These data very clearly depict the dual concerns over inflation and food prices which led to the formation of the Food Prices Review Board in 1973, the anti-inflation program in 1975, and renewed concerns over food prices in 1978. Food prices began their upsurge in 1972, and rose at increasing rates throughout 1972, 1973 and 1974. They then increased at a slower rate into 1976, the first year of the anti-inflation program. This "better" performance in 1976 was, however, much more a consequence of market conditions than of price controls in the anti-inflation program. However, food prices accelerated again in 1977 and 1978 and reached rates of increase approaching those which were recorded in 1973 and 1974.

Chart 2-1A

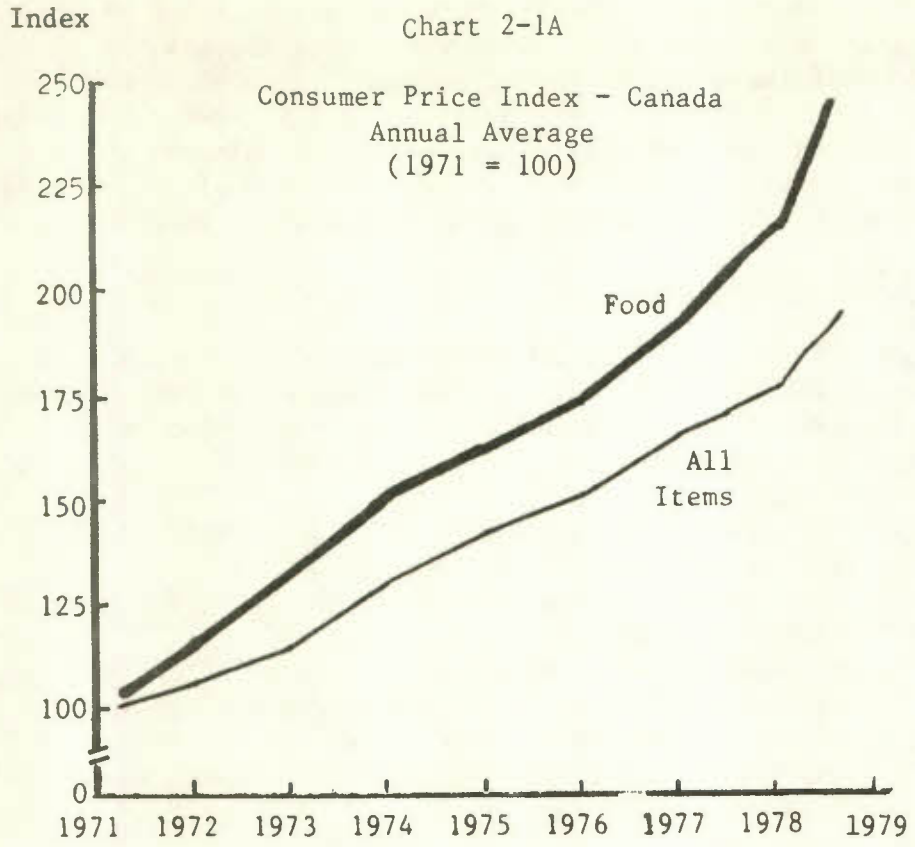
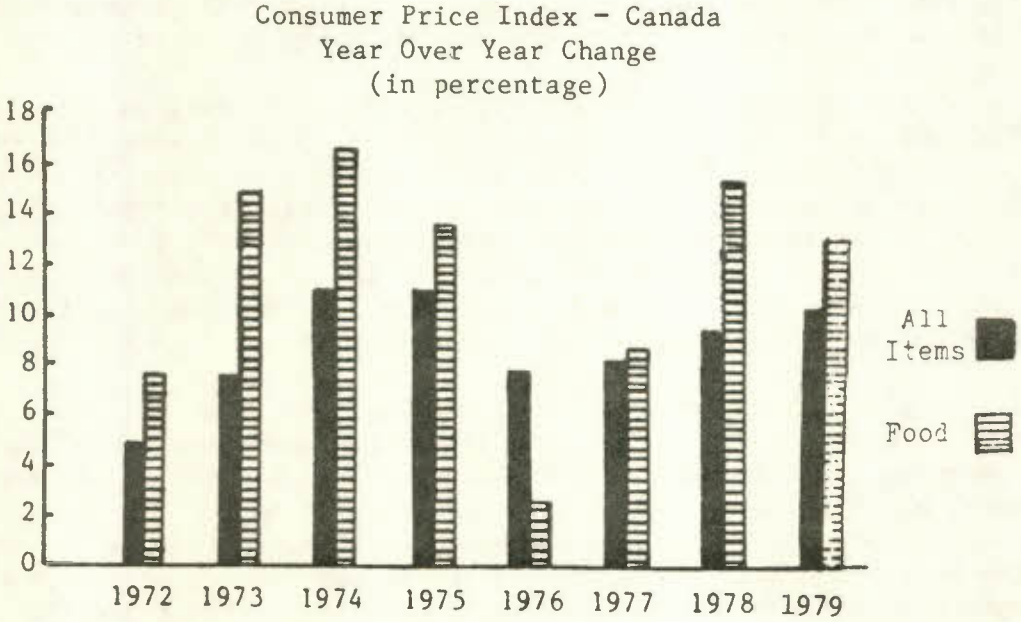


Chart 2-1B

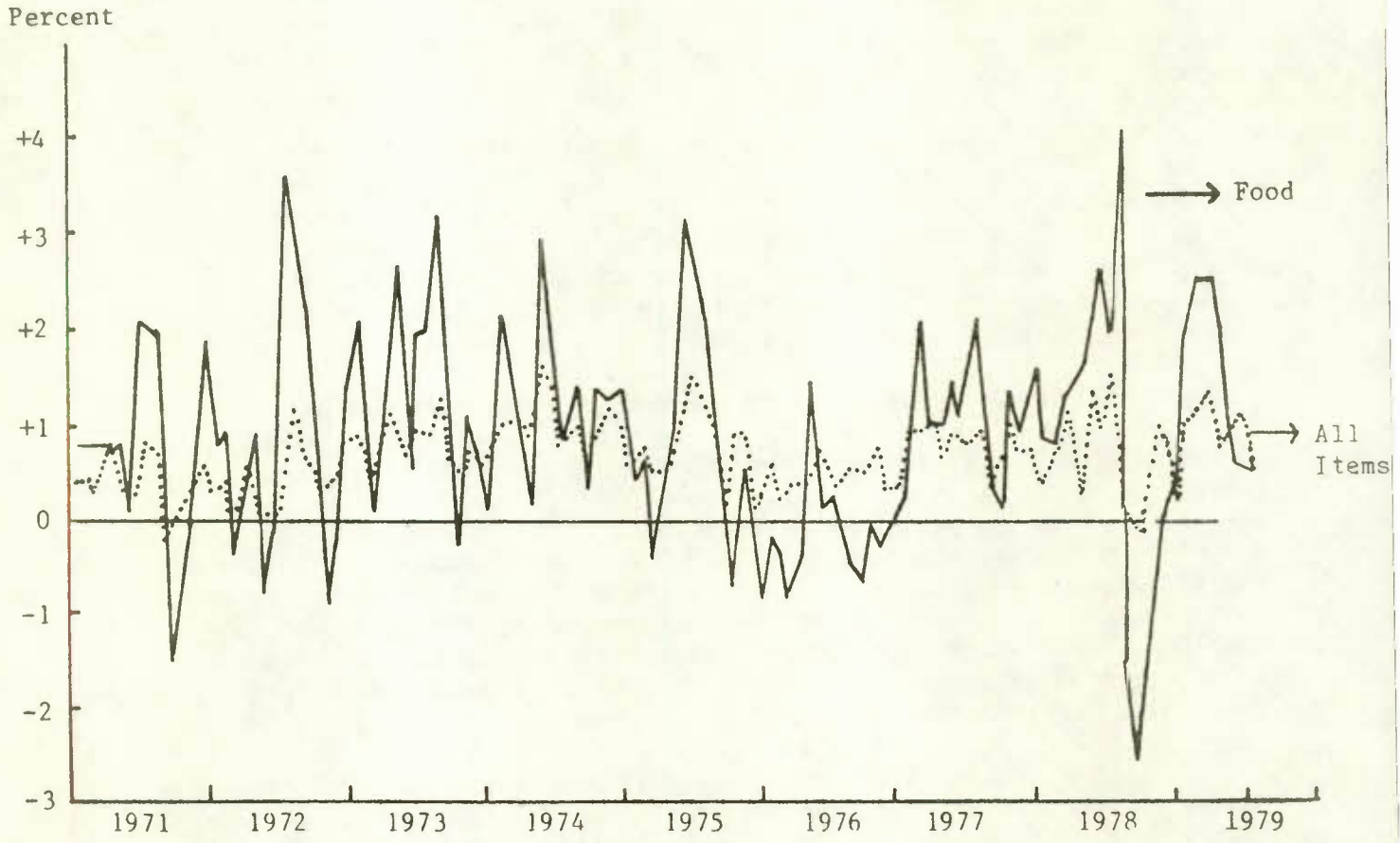


Note: 1979 data up to June, compared to first six months of 1978.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-2

Consumer Price Index - Canada
Month-To-Month Change
(in percentage)



Note: 1979 data to June.

Source: Statistics Canada.

From 1971 to 1978, retail prices generally measured by the CPI have increased much less than those for food; the only exception was in 1976. As a consequence, at the end of 1978, there is a spread between the All Items CPI and its Food Component of 34 index points or about 18.7 per cent of the CPI. By the second quarter of 1979, the spread reached 45.0 index points. This means that since 1971 food prices have increased on average just over 2 per cent per year faster than other prices in the CPI. The slowed rate of increase in food prices in 1976 definitely contributed to the drop in the measured "rate of inflation" in that year but has caused the CPI to move faster in each of the other years. As suggested earlier, using the CPI as the measure of inflation, with or without the food component, has severe limitations.

In order to disaggregate the two data series in Chart 2-1, and to determine how food and some of the important food components have caused the CPI to move, "contributions" of separate items were determined. The CPI is really only a weighted average of a large number of individual retail price changes. Consequently, the actual or relative contribution of a particular item (or group of items) can be easily calculated.[13] The results of these calculations are provided in Table 2-1.

Of primary importance in Table 2-1 is the contribution of the food components of overall CPI increase. In the pre-controls era,[14] 39 per cent of the increase in the CPI was due to food; during the major portion of controls, the increase in the food component was very close to the increase in the overall CPI; consequently, the contribution of food was almost equal to its importance in the CPI. Since December of 1977, food has contributed 43.9 per cent of the increase in the Consumer Price Index. Also of significance is the fact that increases in "Food-at-Home" have exceeded "Food Consumed Away-From-Home". As a consequence of this and its much larger weight, the Food-at-Home component has been a much larger contriburor to increases in the CPI.

This latter observation is significant for a number of reasons. First, the numbers game is sometimes played by blaming "eating out" for rising food prices. For example, the Statistics Canada announcement of the November 1978 data pointed out that "The 0.3 per cent increase in the Food Index was largely attributable to higher prices for restaurant meals."[15] But while eating out may cost more for the same food because far more services are purchased, it is simply not true that restaurant meals have added more to food price increase than home-consumed food. Second, if (as some people believe) eating out is actually more important than the weights of CPI show, then increasing their weights and decreasing the weights on food consumed at home would actually reduce the measured change in food prices. Finally, if one is prepared to make a simple assumption about the income characteristics of those who patronize each market, one might make the value judgment that the more rapid price increases in home-consumed food have more serious welfare implications than increases which occurr in establishments outside-the-home.

Table 2-1

Contribution of Food and Food Components to Changes in the Consumer Price Index

Index Component	PRE-CONTROLS (1971 to October 1975) Relative Importance in the CPI (%)	Change in Component (index pts)	Contribution to Change in CPI (%)	Contribution to Change in Food (%)	CONTROLS (Oct. 1975 to Dec. 1977) Change in Component (index pts)	Contribution to Change in CPI (%)	Contribution to Change in Food (%)	POST-CONTROLS (Dec. 1977 to June 1979) Change in Component (index pts)	Contribution to Change in CPI (%)	Contribution to Change in Food (%)
1. CPI (all items)	100.00	42.8	100.0	-	24.4	100.0	-	23.4	100.0	-
2. Food	24.80	67.3	39.0	100.0	24.2	24.6	100.0	-44.4	43.9	100.0
3. Food at Home	21.02	67.1	32.9	84.5	24.3	20.9	85.1	47.0	58.1	86.4
4. Food Away from Home	3.79	67.6	6.0	15.4	23.3	3.6	14.7	33.6	6.0	14.9
5. Dairy	3.33	68.5		13.7	21.1		11.7	25.5		7.1
6. Beef	3.21	46.5		8.9	14.3		7.7	98.4		30.0
7. Pork	1.78	140.0		14.9	-24.8		-7.4	18.4		3.1
8. Poultry	0.91	103.8		5.7	-0.6		(-)0.1	51.5		4.7
9. Eggs	0.62	86.4		3.2	0.8		0.1	15.0		1.0
10. Cereal and Bakery Products	2.63	68.6		10.8	19.6		8.6	39.8		9.5
11. Fresh Vegetables	1.10	42.0		2.8	85.0		15.6	48.3		5.4
12. Fresh Fruit	1.07	44.2		2.8	73.2		13.1	101.2		10.4
13. Processed Fruit	0.50	55.3		1.7	31.6		2.6	52.8		2.7
14. Processed Vegetables	0.58	72.3		2.5	15.9		1.5	17.9		1.0
15. Fish	0.40	86.1		2.1	49.8		3.3	34.8		1.5
16. Beverages	1.16	51.5		3.6	80.6		15.6	*		*
17. Coffee**	0.32	38.9		0.7	239.0		12.7	-87.5		-2.3
18. Sugar***	0.16	162.3		1.6	-76.4		-2.0	85.2		2.2

*Not available.
**The June CPI for coffee and tea was compared with December 1977 coffee.
***The June CPI for sugar and sugar preparations was compared with December 1977 sugar.

Source: Statistics Canada, Catalogue Nos. 62-001, 62-010, 62-539, or calculated.

Interpreting briefly the effects of the individual food categories for the three periods considered is difficult because of the large number of statistics. The increase in each component is provided in Table 2-1 but is more easily seen in Charts 2-3 to 2-13 in the next section. In order to summarize the dominant contributors to changes in the CPI, the top five in terms of contribution to changes in the food index are summarized in Table 2-2.

Table 2-2

Dominant Food Components in Causing the Food Index to Increase

Rank	Pre-Controls	Controls	1978-79
1	Pork	Beverages/Fresh Vegetables	Beef
2	Dairy*	Fresh Fruit	Fresh Fruit
3	Cereals and Bakery Products*	Dairy*	Cereal; Bakery Products*
4	Beef	Cereals and Bakery Products*	Dairy*
5	Poultry*	Beef	Fresh Vegetables

* Designates some form of administered pricing in effect.

Price and Wage Controls

During the seventies, both Canada and the United States have undergone periods of mandatory wage and price controls, formulated and administered by their respective federal governments. Both control programs were instituted in response to increasing inflation and an apparent belief by government that short-term controls could eventually bring the situation under control. In the words of June Menzies, appointed Vice-Chairman of Canada's Anti-Inflation Board in September 1976, the objective of the Canadian program was to "squeeze out of the economy that part of rising prices and incomes due to inflationary expectations".

U.S. Price Controls, 1971-74. The U.S. control period began prior to the Canadian control program. In August 1971, President Nixon formed the Cost of Living Council, assisted by the Office of Emergency Preparedness, to oversee the controls program. It is, perhaps, interesting that price increases at that time would now be considered moderate

and a welcome relief, compared with today's changes. But of course the U.S. program began before the joint decision of the OPEC oil cartel to raise the price of a barrel of oil 300 per cent, or before the rapid food price increases of 1973.

The U.S. controls program began with a ninety day compulsory price freeze, known as Phase One. Following this initial price freeze was a series of well-delineated price freeze, control, and decontrol periods, instituted by the U.S. government in response to the prevailing inflation rate. The final decontrol period began in August 1973, and the entire wage and price control program as removed on April 30, 1974. The Canadian program did not begin until October 14, 1975, so that the U.S. economy had had a full year to settle back to its normal patterns of behaviour.

There was in the U.S., as in Canada, considerable reluctance to controlling food prices by this means. As a result, in the U.S., food at the farm gate level was originally exempted from price controls; unprocessed farm products, such as meat were exempt from controls at all levels, including the retail and wholesale trade. In March 1973, controls were applied to some processed meats. The Canadian Food Prices Review Board analysed this approach and concluded: "In some instances, the U.S. control period did specify prices, with the result that shortages, particularly in the case of some food products, appeared."[16]

Analysis by the Food Prices Review Board during the period of U.S. price and wage controls showed that distortions in the normal price-setting mechanisms occurred. This produced the result that food prices actually rose faster during the freeze periods than during non-freeze periods. The Board went on to conclude that price controls in the food sector were "ineffective in preventing substantial price increases over the life of the program as a whole".[17] Its analysis also showed that from 1970 to 1974, food prices in Canada and the U.S. rose the same amount, 38 per cent, although some short-term movements were different.

The Canadian Controls Program. The objective of Canada's program of wage and price controls was to moderate price increases. The target in the first year of controls was to reduce the inflation rate, as measured by the CPI, to 8 per cent. In the next two years, the target rates were set at 6 per cent and 4 per cent respectively. The program was given a three year mandate, to be removed legally in December 1978. As in the United states, food at the farm gate was not controlled. The Anti-Inflation Board (AIB) maintained, however, that by far the bulk of the cost of food was controlled. They reasoned that since only 42 per cent of the average cost of food is retained by the farm sector that represented the maximum uncontrolled share of food. The other 58 per cent fell within the mandate of the AIB. Moreover, the Board argued that many farm input costs were also controlled.

Manufacturing firms were held to a profit margin equivalent to 85 per cent of the previous two out of three best years. Food processing and distributing firms were allowed 95 per cent of previous profit

margins. The basic principle of prices and profits controls developed in Canada was that firms were permitted to pass through to the marketplace only allowable costs and a margin of profit defined and limited by the product itself.

Supply management marketing boards, despite their monopoly controls over the production of some foods (turkeys, industrial milk and eggs), were not controlled by the AIB. However, since their pricing formulas were not determined by the normal market pressures of supply and demand in 1976, the AIB obtained agreement from the federal government that supply management boards should operate within the spirit of the controls. A system of guidelines was set up to determine what would and what would not be an allowable increase, in a manner similar to the guidelines under which manufacturing firms worked. These products made up 23 per cent of the food component of the Consumer Price Index and thus brought more of the food sector under some influence from the AIB. In fact, however, by the time AIB was in place, the marketing boards with considerable control over price were already in pricing regimes which were cost-pass-through based. Application of AIB guidelines therefore more legitimized than regulated these pricing schemes. In 1978, the AIB requirements on the economy in general were removed, partly because it is believed that controls in place too long produce distortions. A different attitude prevails on the supply managed commodities, and those administered pricing arrangements remain.

U.S. and Canadian Price Movements

The pattern of food price movements in Canada and the U.S. have historically been very similar. Short term divergences have occurred in response to changes in exchange rates, market adjustment processes, or other temporary aberrations. However, on balance, experience in the U.S. have been reasonably quickly and closely followed in Canada.

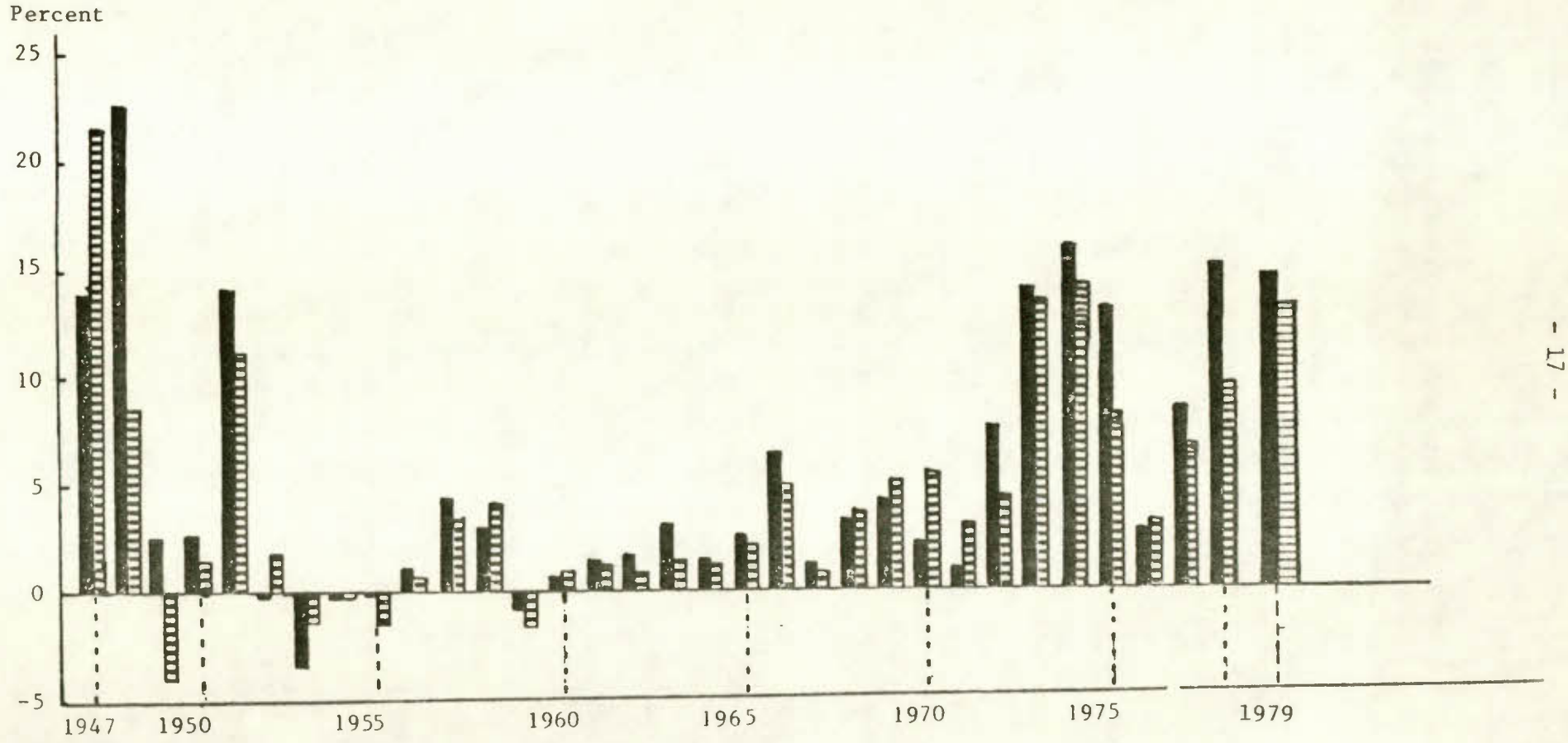
In 1973, the Food Prices Review Board analyzed this relationship back to 1947. It found a " ... remarkable degree of similarity in the movement of food prices in Canada and the United States. Both countries saw substantial rises in food prices in 1947 and 1948, and then again in 1951, followed by five years of relative food price stability. In 1957 and 1958, food prices bubbled up again to a similar extent in both countries. Through the 1960's, the parallel patterns of change countinued ... The broad similarity of movement in food prices in Canada and the United States is a reflection of the fact that a number of key determinants of food price change are international rather than national in scope"[18] (Chart 2-3).

In a later report, the Board found that movements continued to be very similar despite the controls program in the U.S. For example:

> "Despite a controls program in the U.S. and no corresponding program in Canada, the overall relationship between price changes in the two countries was not significantly altered."[19]

Chart 2-3

Annual Rates of Change in the
Consumer Price Index for Food
Canada and United States



Source: Food prices Review Board, 1947-74; otherwise calculated from Statistics Canada data, and U.S. Department of Labour Data.

Since 1973, there have been a number of factors that might have caused patterns of price movements in Canada and the U.S. to diverge. The U.S. exited from its control program, and Canada entered a period of price controls which encompassed the post-farm gate sectors of the food industry. Also, since 1977, the Canadian dollar has depreciated substantially relative to the U.S. dollar, and there have been a number of changes in government programs in the agricultural industry which have applied upward pressure on Canadian agricultural prices. Because of these factors, which would cause Canadian prices to depart from traditional relationships, the FPRB data have been updated. Chart 2-4 compares the CPI's of both countries and Chart 2-5 compares movements in their food components.

A visual comparison of the data shows that variations in the series appear to be similar and that both countries show similar upward trends. However, prices in Canada appear to have grown slightly faster since 1974, a year in which the U.S. had a very low rate of overall price increase. At the end of November 1978, measured on the 1971 base, the Canadian CPI stood at 180.8 while the U.S. CPI stood at 166.5. This gap is more pronounced in food and has been particularly so since the relatively flat performance in 1975-76. The spread in the indexes of food prices at the end of 1978 is twice as large, when measured in index points.

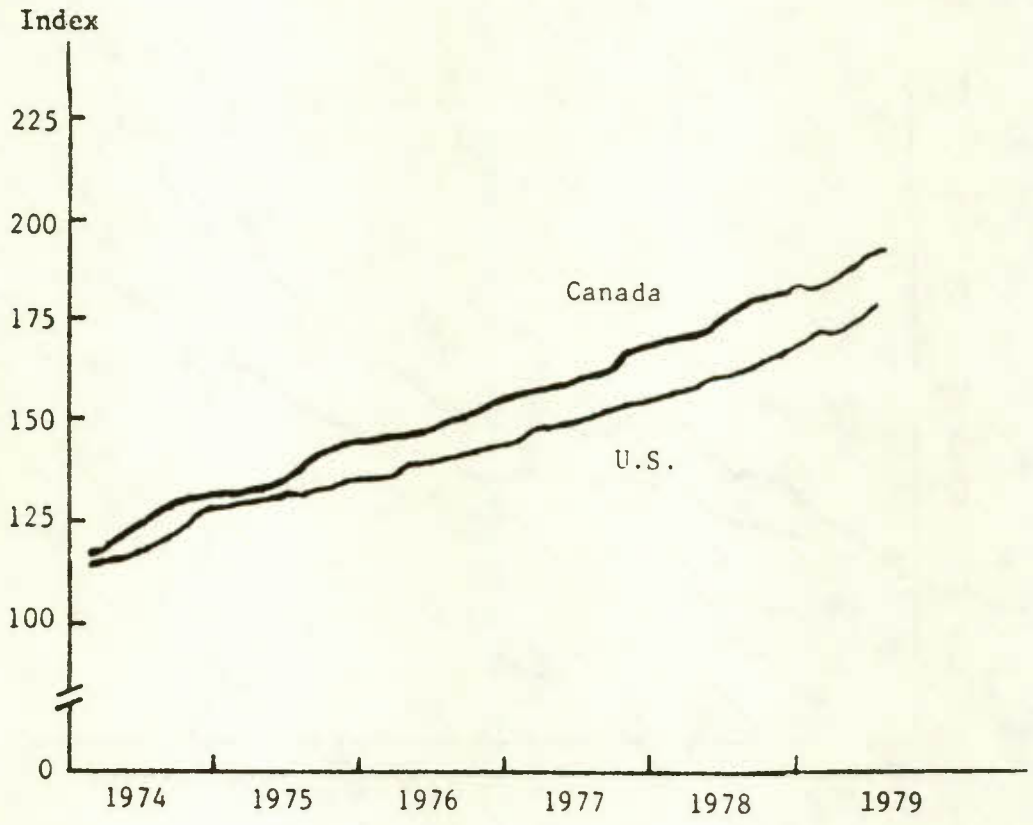
It would appear therefore that during 1977 and 1978, Canadian food prices have risen faster and have contributed to a moderate, but real, worsening of our overall price performance relative to the U.S. This would imply that the historic relationship of close correspondence between U.S. and Canadian food prices has been altered.[20] Part of the increased spread with the U.S. will result from declining value of the Canadian dollar. A specific estimate of this effect is provided below. But there are other forces at work as well.

In order to identify some of the causes of the widening spread between U.S. and Canadian food prices, the following paragraphs discuss very briefly the major food categories.

Dairy -- The retail prices of dairy products in Canada have risen much more than those in the U.S. in recent years (Chart 2-6). Prior to 1974 there was a tendency for both series to move very closely together. During 1973 and 1974, when the fluid milk subsidy was in place in Canada, our prices were held down relative to those in the U.S. However, in 1974, the Government of Canada removed the fluid milk subsidy, and more importantly, began a series of administered producer price increases as part of its dairy policy. These changes significantly increased producer prices and have been reflected in higher consumer prices. Consequently, since 1974, Canadian dairy product prices have risen by twice as much as those in the U.S., with most of the widening taking place in 1974, 1975 and 1979. Since the dairy industry is under an administered price regime, and imports are small, the direct effects of devaluation of the Canadian dollar will be negligible.

Chart 2-4

Consumer Price Index - All Items
Canada and United States
(1971 = 100)

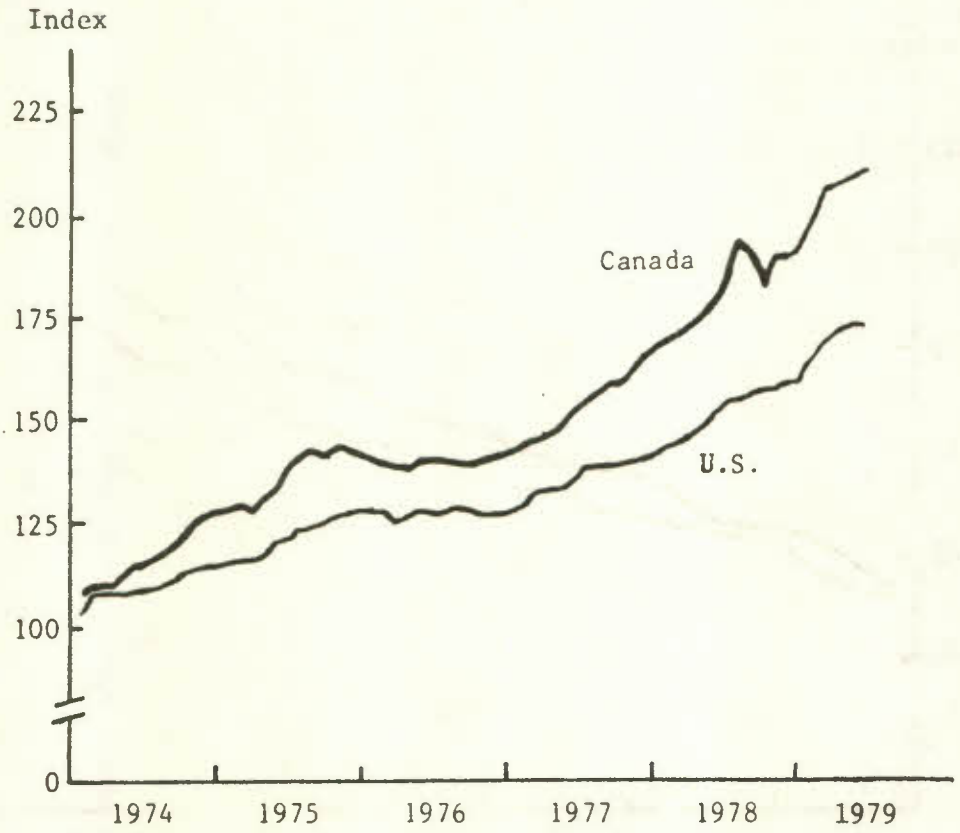


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-5

Consumer Price Index - Food
Canada and United States
(1971 = 100)

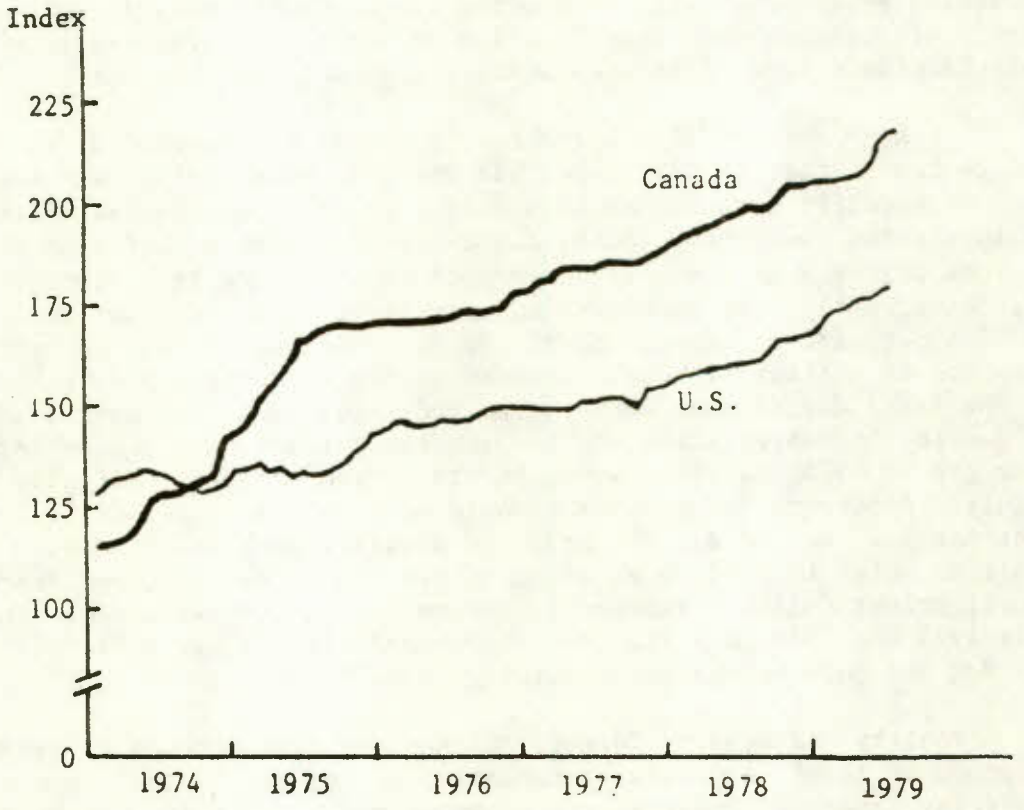


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-6

Consumer Price Index - Dairy Products
Canada and United States
(1971 = 100)



Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Beef -- The path of beef prices in both countries has been typically unstable but tends to follow a five-year cycle (Chart 2-7). Until mid-1978, beef had risen less rapidly than the Food Component in terms of 1971 prices; during the last half of 1978 and early 1979, they rose more rapidly. In mid-1979, beef prices fell slightly. Movements in beef prices in Canada and the U.S. were similar until mid-1977, although short term variations did occur. Since about July 1977, prices in Canada have risen considerably more than those in the U.S. primarily as a consequence of the declining value of the Canadian dollar and due apparently to some widening of retail margins on beef in Canada. Since cattle and beef are relatively freely-traded commodities between the U.S. and Canada, a producer or wholesale price change in the U.S. is quickly reflected into Canada; declining Canadian dollar values are a very real part of changing prices of internationally traded goods like beef.

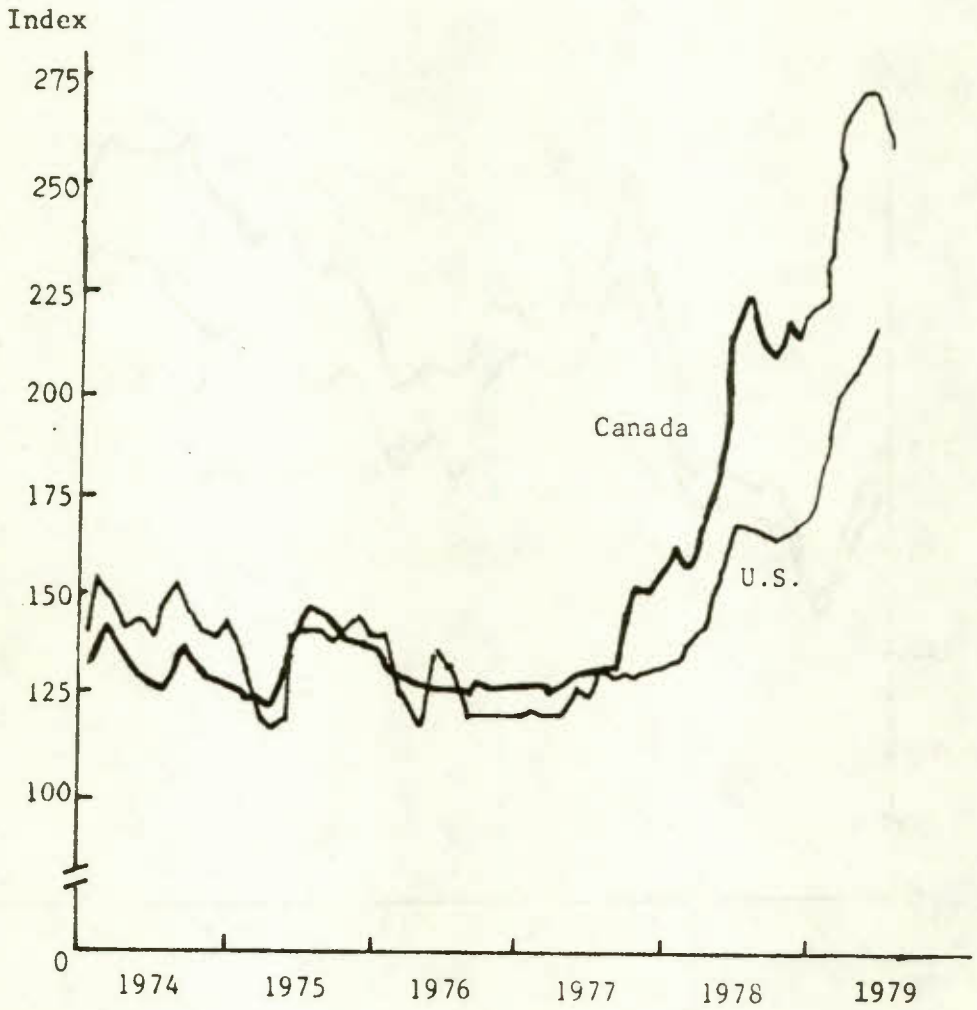
Pork -- Pork is also a relatively freely-traded commodity, subject to fewer trade restrictions than beef, although pork trade takes the form of specific cuts rather than carcasses or live animals. Pork prices in the two countries should, and do, follow similar patterns (Chart 2-8). Pork prices were unusually depressed in 1971 (the base year of the index); consequently, the indexes show very large increases over the period (134 per cent in Canada and 99 per cent in the U.S.). The pattern of movements is similar although Canadian prices have risen more since 1974. The large discrepancy between the index levels in 1977 and 1978 is partly due to the depreciation of the Canadian dollar. The reason for the widening gap in 1975 and 1976 cannot be given from the data available to this study. A reasonable hypothesis would be widening processor or retailer margins, but of all the products studied, pork is the most difficult on which to perform accurate margin analysis. Hog, and therefore pork, prices follow a reasonably systematic three-year cycle. The peaks in 1975 and 1978, and troughs in 1974 and 1976-77 are evident in the chart. Hog and pork prices are declining in 1979.

Poultry and Eggs — Turkey, chicken and egg prices are regulated at the producer level in Canada by marketing boards and employ administered pricing schemes. Poultry production in the U.S. is free of this form of regulation. The base year for the index was, like pork, a depressed period for each of these product prices. The data show that poultry meats have risen almost as much as pork and much more than poultry in the U.S. (Chart 2-9).

Whereas unregulated pork in both countries and poultry in the U.S. are now in the process of downward price adjustment, due to administered pricing in Canada poultry prices there continue their upward movement. Chart 2-10 indicates that egg prices in Canada have been relatively stable since mid-1975. However, relative to 1971, U.S. prices have been above Canadian prices for only two brief periods since 1974. The spread between the indexes has significantly widened because U.S. prices have fallen relative to Canadian prices.

Chart 2-7

Consumer Price Index - Beef
Canada and United States
(1971 = 100)

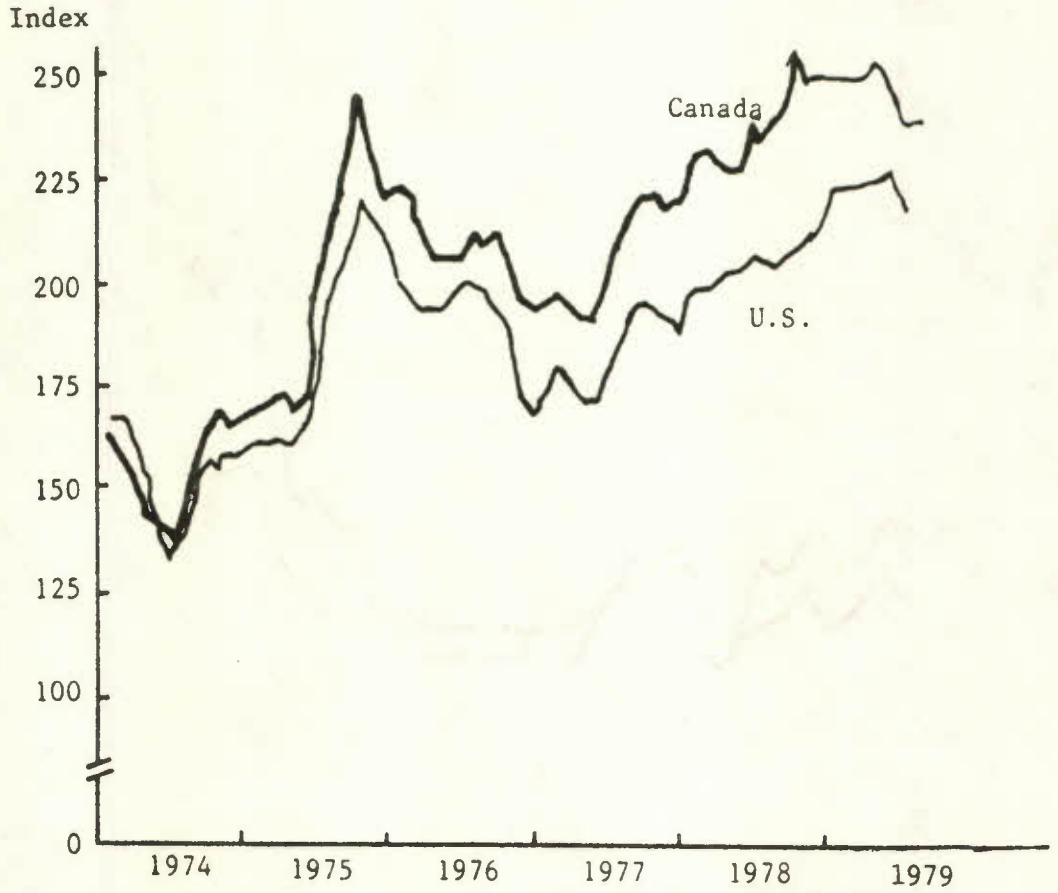


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-8

Consumer Price Index - Pork
Canada and United States
(1971 = 100)

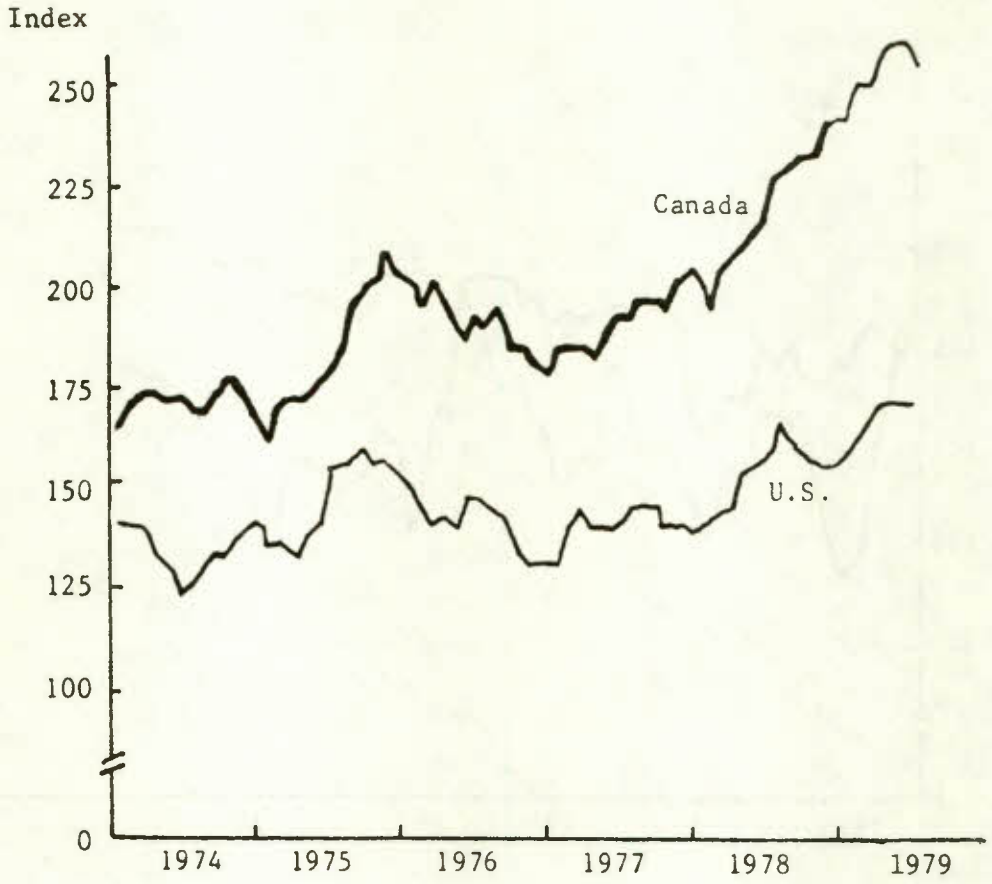


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-9

Consumer Price Index - Poultry
Canada and United States
(1971 = 100)

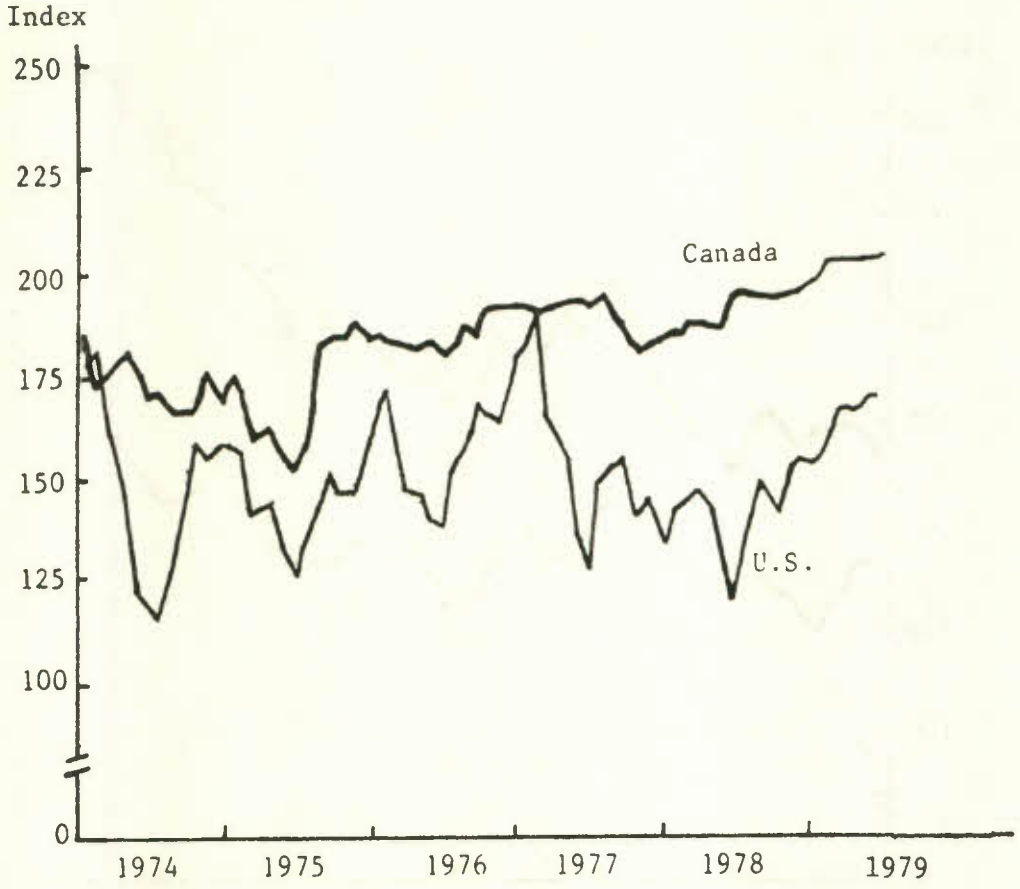


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-10

Consumer Price Index - Eggs
Canada and United States
(1971 = 100)



Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Cereals and Bakery Products -- The increase of these indexes in Canada and the U.S. in terms of 1971 prices has been approximately the same as increases in the entire food component (Chart 2-11). This market in Canada has been subject to an administered price for the basic input of wheat since 1973 while the market is entirely open in the U.S. This policy difference explains why prices in the U.S. rose more in 1974, and fell more in 1975, as wheat prices peaked in international markets. Wheat is a small proportion of total bread or bakery product costs, and the comparison of the price series illustrates the difficulties of really stabilizing a domestic price by applying controls at one (relatively unimportant) level of the marketing chain. The effects of increasing the domestic support price on wheat in November 1978[21] shows up clearly in the Canadian increases in early 1979.

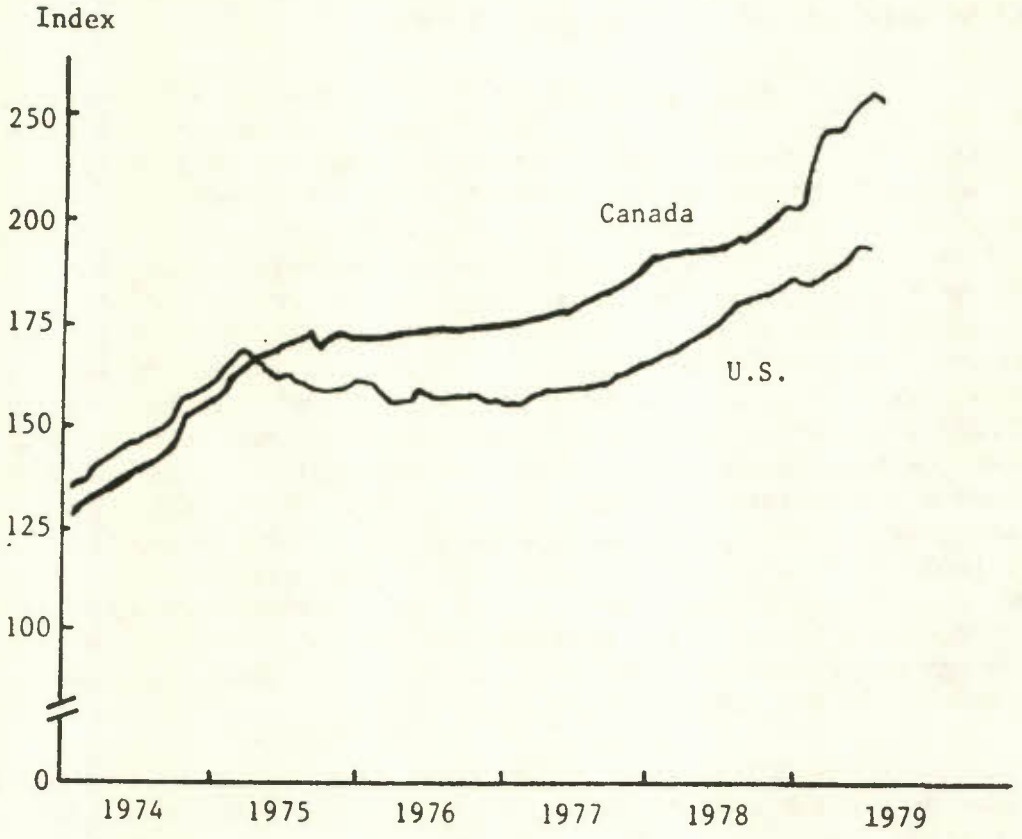
Fruits and Vegetables -- Fresh fruits and vegetables are usually perishable, they are freely traded, and they are usually quite sensitive to adverse (or very favourable) weather conditions. During the off season in Canada fresh fruits and vegetables come from a few southern locations (Florida, Texas, California and Mexico) upon which large sections of the U.S. are also dependent. Consequently, price behaviour can be very dynamic. The prices of processed fruits and vegetables, on the other hand, are much more stable because the products can be stored and are considerably less dependent on weather conditions in a particular area. The differences in the price patterns reflect these factors (Charts 2-12, 2-13). Prices of processed fruit and vegetables in both countries have risen consistently over the past five years but at a relatively slow rate; Canadian prices have risen slightly faster. Fresh product prices have increased dramatically in both Canada and the U.S., particularly in 1977 and 1978, primarily due to cold weather in some of the southern states where most of the fresh commodities are produced for winter consumption. Price patterns are similar in Canada and the U.S. although devaluation of the Canadian dollar has caused substantial spread to develop in the past two years.

A few conclusions can be drawn from this review of retail prices as a whole and of food prices during the seventies. First, it is very clear that rising food prices have been a major force in driving up the Consumer Price Index over the entire period. The range of government policies in both countries (particularly anti-inflation measures) directed at price stability can hardly be considered to have been successful, although the validity of this statement could depend upon the definition and expectations that are associated with the notion of "price stability".

Second, devaluation of the Canadian dollar has had some impact on some commodities; a qualified estimate of this impact is given below. But most importantly for Canadians in these troubled economic times, is that much of government policy -- consumer or producer subsidies, marketing boards, supply management, and the support/deficiencies programs -- has not stabilized retail food prices. In important particular cases, policy has actually added to food price increases and provided the basis for further increases. In Canada, the added regulation, public expenditure and consumer cost have been associated with a departure from traditional, similar price behaviour in the U.S.

Chart 2-11

Consumer Price Index - Cereal
and Bakery Products
Canada and United States
(1971 = 100)

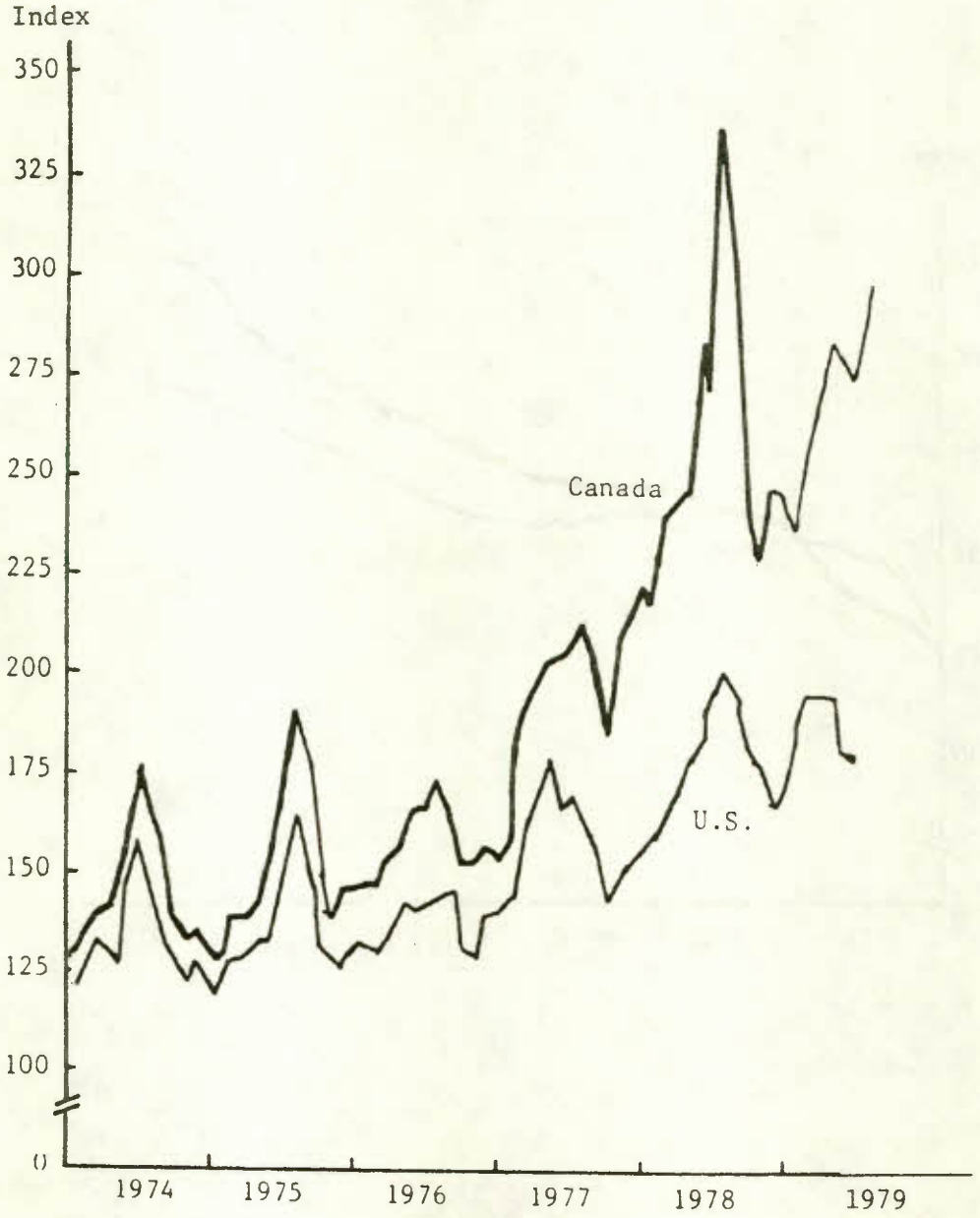


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-12

Consumer Price Index - Fresh Fruit
and Vegetables
Canada and United States
(1971 = 100)

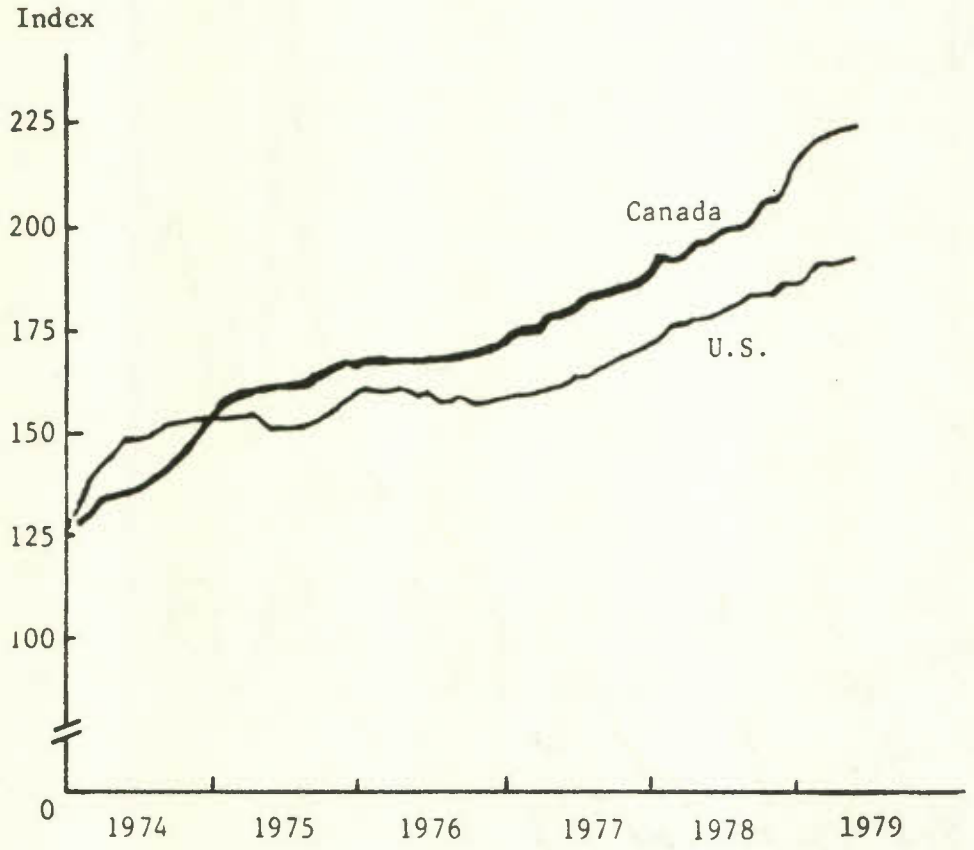


Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

Chart 2-13

Consumer Price Index - Processed
Fruit and Vegetables
Canada and United States
(1971 = 100)



Note: U.S. data to May 1979 and Canada data to June 1979.

Source: Statistics Canada, Catalogue No. 62-001, 62-010.

U.S. food price performance in the seventies has surpassed ours, and not all of the difference relates to the declining Canadian dollar. The search for reasonable food price stability is a difficult, if not impossible one in the Canadian context. The evidence to date suggests that the search can be expensive and counter-productive. Despite public desires, and political pronouncements, there is more to farm-to-food pricing and price stability than controls or administered pricing.

Effect of Dollar Devaluation on Food Prices

The decline of the Canadian dollar relative to other currencies has raised some food prices. Perhaps more than any other example, changing international dollar values illustrate the conflict between farmers and consumers on food prices. For any commodity which is reasonably freely traded, subject to competitive trading, and is not subjected to administered pricing at any level, a decline in the Canadian dollar relative to other currencies will increase domestic prices by: (1) raising the Canadian landed import price; and (2) raising domestic farm prices to the new, higher import (or export) levels. Farmers, therefore, will benefit from these price increases, consumers will face higher purchase prices, and retail price indicators will show upward movement.[22]

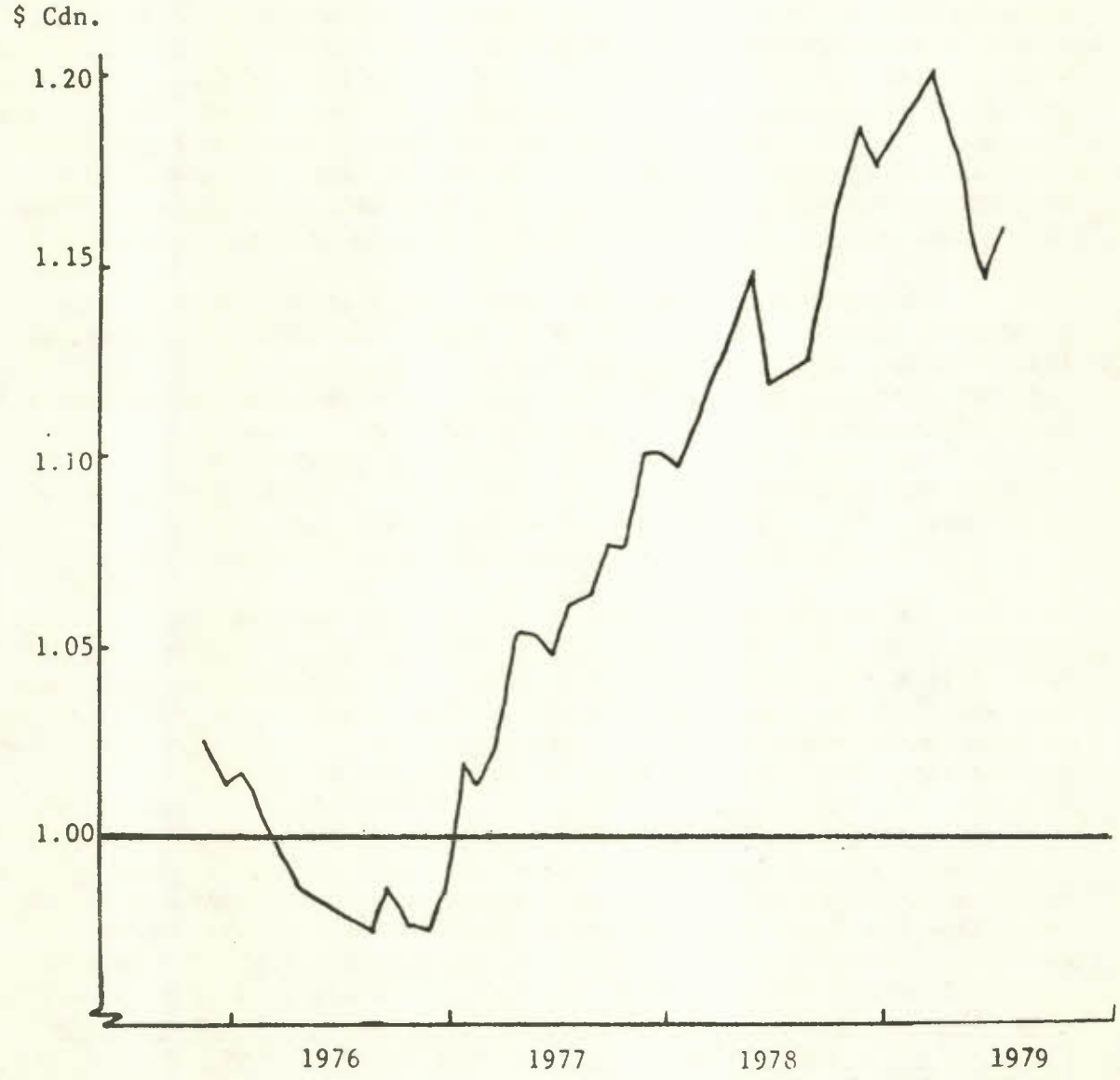
Accurately analyzing the total impact of devaluation (Chart 2-14) involves determining a number of direct and indirect effects, and should include determining the distribution of effects in relation to all currency changes. In order to obtain a rough indication of the effect of devaluation on food prices between late 1976 and the end of 1978, we have made a few simplifying assumptions. First, we consider only the change in value of the Canadian dollar compared with the U.S., down about seventeen points during the December 1976 to November 1978 period. This is then compared to the 29.4 per cent increase in the Food Component of the CPI.

It is also assumed that 35 per cent of Canadian food originates off-shore, and that 35 per cent of the value of the retail food dollar goes to farm prices where the devaluation effect is expected to be felt. Indirect effects of devaluation such as those affecting labour, packing, or other manufacturing costs are neglected. When the changes are isolated in this way, they show that about 5.3 to 5.5 percentage points out of the 29.4 per cent increase in the food index between late 1976 and November 1978 can be attributed to the direct effects of devaluation. Meats, in particular beef and pork, are the leading contributors, followed by fresh fruits and vegetables. If the small contributions of sugar, cocoa and other imported foods that are not as dependent on the U.S. dollar relationship were considered, the combined direct effect of devaluation would not exceed six percentage points. Therefore, it is concluded that less than one-fifth of the change in food prices over the two year period from late 1976 to November 1978 can be attributed to devaluation of the Canadian dollar. As a consequence, the observed growing spread between the Food Component of the Canadian CPI and its U.S. counterpart is only partially attributable to devaluation. The spread widened from 13.5 index points in December 1976 to 31 index points in November 1978. Using the calculated direct effect of devaluation, 3.5 of the 17.5 index point

increase in the spread would be explained by devaluation. The remainder would be due to other factors. Moreover, since the Canadian dollar appears to have bottomed out in terms of other currencies, the contribution of devaluation to higher food prices should abate, or decline if the Canadian dollar rises.

Chart 2-14

Foreign Exchange Rate



Source: Bank of Canada Review, 1979.

III STRUCTURAL CHARACTERISTICS OF THE AGRICULTURAL AND FOOD SYSTEM IN CANADA

The total food system in Canada is a large and complex industry. Although it may often be considered to be comprised mainly of agricultural production, the farm sector is only part of food production, and therefore only part of the food pricing process. The food production process originates before farmers in the farm supply sectors. It includes food processing and manufacturing, a variety of contributions by financial and transportation institutions, food retailing, and government activities. Certainly both imports and exports are also important to the nature of the Canadian food industry. The purpose of this section is to describe briefly some of the structural characteristics of the major sectors involved in the industry.

In 1978, food and non-alcoholic beverages expenditures in the National Accounts were estimated to have been about $27 billion, or 11.7 per cent of Gross National Expenditure. Food and beverage exports represented an additional $5.3 billion, or about 10.2 per cent of total exports. Approximately 70 per cent of the value of food consumed in Canada is of domestic origin, and about 30 per cent is imported. Of the domestic production, farmers usually receive about 40 per cent of what consumers pay for food and the other 60 per cent is received by all of the other sectors which are involved in food marketing. This thumbnail sketch of the size and composition of the industry is expanded in the following discussion.

Canadian Agriculture: The Farm Sector

According to the 1976 Census of Agriculture, there were just over 300,000 farms in Canada; farmers and their families constituted just over 6 per cent of the Canadian population, and the farm labour force represented about 5.0 per cent of the Canadian labour force. Farm cash receipts in 1978 were just over $11.9 billion, and resulted in a net farm income of $4.7 billion. Despite the vastness of the country, only about 7 per cent of the total acreage is arable land, and only about 1 per cent of the total is prime agricultural land.

Wherever food is produced, the primary production sector is characterized by a large number of small production units. Canada is no exception. The 300,000 Canadian farms range in size from one to two acre strawberry farms on Vancouver Island to ranches in southern Alberta which are measured in townships. The number and size of Canadian farms has been changing over the years. Table 3-1 indicates that farm numbers have been declining and farm size increasing. This is a very definite characteristic of North American agriculture throughout much of the twentieth century facilitated by a rapid mechanization process. The productivity of farmers, measured by their ability to produce more output per farmer, has increased dramatically in this century. As a result of the large number of farmers, competition among farmers for productive resources and markets is keener than in any other industry and, over time, farmers have had to adopt technology and grow, or get out of the industry.

Another important characteristic of the farm sector is that it has been, is, and will continue to be owned and operated by individuals and their families. Out of this characteristic has grown the concept of the "family farm" which appears to have more social connotation than economic or legal status in today's agriculture.

According to the 1976 Census, 91.5 per cent of Canadian farms were single proprietorship operations, i.e., they were owned and operated by individual farmers. Another 3.5 per cent were partnerships and the remainder were "corporate farms". The image of the corporate farm can, in many instances, be misleading, and is probably grossly overstated. Of the small proportion of corporations that did exist, 85.9 per cent were family corporations. As might be expected, the incorporated farms are on average larger than unincorporated farms, accounting for ownership of 9 per cent of Canadian farmland. In 1971, incorporated farms contributed just over 8 per cent of total production, a figure that has been estimated at 10 to 15 per cent for 1976.[23]

There has also been a rapid increase in the capital value of Canadian farms. In 1971, the average nominal capital value was about $100,000; today, the figure is slightly over $200,000, of which 75 per cent is land and buildings. This trend has been most pronounced in the prairie provinces due to rapidly rising land prices, which were due primarily to high prices for farm products during the seventies. Land buying as a hedge against inflation may have raised land prices and altered ownership slightly, but there is no evidence to suggest this has caused a major change in ownership. Similarly, ownership of land by foreigners has increased but is still a small proportion of total land holdings. Consequently, Canadian farms remain basically family owned and controlled units.

The most recent detailed statistical analysis of Canadian farms is the 1976 Census compiled by Statistics Canada. Tables 3-1 and 3-2 provide alternative measures of the number and size distribution of Canadian farms, first by acreage and then by value of sales. Table 3-3 provides a regional breakdown of farm receipts and expenditures by category or product and by expenditure category.

The tabular data show a number of important aspects of Canadian agriculture. Grains and livestock dominate primary food production in Canada, representing more than 77 per cent of the value of farm output in 1978. The prairie region and Ontario account for almost 80 per cent of total output. The average value of production per farm is small by industrial standards, representing approximately $40,000 in 1978. There is a large number of very small farms that contribute only a small proportion of total farm output, and a small proportion of farms that produce a large proportion of total output.

The position of the average farmer is very different from that of the retailer or processor. The individual farmer is a pricetaker, facing fierce competition from his farmer colleagues, but a more or less uncompetitive market where he buys inputs and sells products. In response to this imbalance of market power, there has been growth of producer organizations such as co-operatives and marketing boards designed to offset the unequal bargaining position faced by farmers. The growth of the large, mechanized farm does not fundamentally alter this situation since any one farm still remains a very minute part of total production.

Table 3-1

Size Breakdown of Farms
1961, 1971, 1976

Farm Size	1961 Number	1961 %	1971 Number	1971 %	1976 Number	1976 %
1 - 9 Acres	16,734	(3.5)	14,216	(3.9)	6,582	(2.2)
10 - 69 Acres	50,449	(10.5)	38,611	(10.5)	25,274	(8.4)
70 - 239 Acres	204,159	(42.4)	127,551	(34.8)	95,772	(31.9)
240 - 399 Acres	82,626	(17.2)	59,867	(16.4)	51,115	(17.0)
400 - 559 Acres	44,764	(9.3)	35,821	(9.8)	31,145	(10.4)
560 - 759 Acres	31,860	(6.6)	28,970	(7.9)	26,452	(8.8)
760 Acres or more	50,311	(10.5)	61,092	(16.7)	63,778	(21.2)
Total number of farms	480,903	(100.0)	366,128	(100.0)	300,118	(100.0)
Area in farms (acres)	172,551,051		169,668,614		165,976,260	
Average area per farm (acres)	358		463		533	

Source: Census of Agriculture.

Table 3-2

Classification of Census Farms[1]
By Value of Output, 1976

Value of Products Sold	Number of Farms	Percentage of Total Farms
$75,000 and over	21,538	7.2
$50,000 to $74,999	22,120	7.4
$35,000 to $49,999	27,288	9.1
$25,000 to $34,999	32,021	10.7
$15,000 to $24,999	46,129	15.4
$10,000 to $14,999	35,363	11.8
$ 5,000 to $ 9,999	45,791	15.2
$ 1,200 to $ 4,999	69,097	23.0
Institutional farms	771	0.2
Total	300,118	100.0

1 This term is defined in the 1976 Census as a farm, ranch or other agricultural holding of one acre or more with sales of agricultural products during the year 1975 of $1,200 or more.

Source: Census of Agriculture.

Table 3-3

Farm Cash Receipts and Expenditures, by Region, 1978

Farm Cash Receipts	Maritimes	Quebec	Ontario	Prairies	British Columbia	Canada
			(thousands of dollars)			
Dairy	81,000	573,000	514,000	202,800	120,000	1,490,000
Poultry (includes eggs)	49,233	215,000	315,000	169,300	95,500	843,000
Livestock	100,753	562,950	1,379,690	2,038,865	120,590	4,193,600
Fruits, Vegetables & potatoes	83,310	87,400	264,400	58,560	105,000	599,000
Wheat, oats and barley	383	4,223	39,560	2,543,500	20,040	2,604,900
Other crops	20,060	50,740	765,195	832,630	65,400	1,735,000
Other cash receipts	23,260	173,000	98,200	59,900	30,000	384,000
Total*	357,999	1,666,313	3,376,045	5,905,555	556,530	11,849,500
Farm Expenditures						
Wages to farm labour	33,100	72,200	198,000	189,500	70,800	563,000
Fertilizer and crop expenses	40,690	133,100	307,000	515,400	33,300	1,029,000
Feed and livestock expenses	58,627	429,000	601,000	394,750	99,000	1,582,000
Machinery operation, repair and depreciation	58,610	221,000	532,000	1,654,000	88,600	2,560,000
Building repair & depreciation	22,330	103,800	329,600	295,500	62,800	814,000
Other expenses	43,580	264,910	576,200	1,093,500	131,380	2,109,000
Total*	256,937	1,224,010	2,543,800	4,142,650	485,880	8,657,000

* All items have been rounded, and thus the totals may not add.

Source: Agriculture Division of Statistics Canada, "Market Commentary", proceeding of the Canadian Agricultural Outlook Conference, December 1978, pp. 80-99. The numbers are projections for 1978.

Therefore, the contribution of a particular farmer to the food system is far less significant than the contribution of any one retailer or processor, and the structure of the agricultural production sector is therefore fundamentally different from that of other parts of the food sector. Later discussion describes how the supply management marketing boards alter this structural characteristic by horizontal integration of farmers, providing the other extreme in market structure.

The Industrial Sectors in Food Production

The industrial sectors which complement Canada's agricultural industry to form the food industry extend in both directions from the farm. In one sector, farm supply, the farmer is the user of such goods as fertilizers, chemicals and farm machinery. In the other sector, processing and manufacturing, farmers are producers of the raw materials needed by industry. Farmers convert industrial products and natural resources into raw food products, and processors convert these into consumer-ready goods for the food distribution system.

In general, the structure of the industrial sectors is very different from that of primary production. For example, there are only eight major farm machinery companies which supply 85 per cent of the Canadian farm machinery market. Of these eight, one is acknowledged as a price leader. The processing and manufacturing industries also tend toward a similar concentrated structure, but more variation occurs in this sector than elsewhere in the industrial sectors of the food industry. Another distinguishing characteristic of the industrial sector of Canada's food industry is the degree of foreign ownership and existence of multinational corporations. It has been estimated that less than three per cent of total farm land in Canada is held by non-Canadians, but only one of the eight largest farm machinery companies has headquarters in Canada.

The structure of these industries -- those that sell to and buy from farmers -- creates a different market environment and pricing framework than exists for most of the farm sector. Most of these industries are sufficiently concentrated in market power that price movements initiated by one firm affect the decisions of another. Most farm supply companies are large enough that they can absorb periods of low demand by either curtailing production to a profitable point, or relying on the non-farm side of their production to sustain viability. All of these factors are part of the food pricing process.

Farm Supply

A very large and important part of the Canadian food system often overlooked in food price questions is the supply of farm inputs, both products and services. Farm supplies are those essential inputs which are converted, through the production process, to raw food products which the farmer then sells. Some agricultural production is itself a very important part of farm supply. For example, seed grain producers are essential to commercial grains production; feed grain production is

essential to livestock production, and farmer to farmer land rental is an important source of capital for agricultural growth in many areas. As a result of these kinds of factors, the farm supply sector internal to agriculture is part of the food pricing process.

The discussion which follows identifies the more traditional areas of farm supply: fertilizer, chemicals, farm machinery, petroleum products and fuels, seed, prepared feeds, labour and credit.

Fertilizers[24] -- In 1978, Canadian farmers spent about $567 million on almost 1.5 million tons of fertilizer. Fertilizer is an important input because it supplies supplementary nutrients to the soil to aid plant growth and increase yields of crops. The major nutrients which are added in this manner are nitrogen, phosphorous and potassium, although other nutrients may also be added depending on the crop and soil condition.

Fertilizers in Canada are manufactured by eleven firms operating fifteen basic fertilizer plants and eight potash mines. The province of Saskatchewan now owns and operates two potash mining companies formerly held by private interests. Almost two-thirds of nitrogen manufacturing is in Western Canada because of the relatively inexpensive natural gas which is an important input to production of nitrogen fertilizer. The phosphate rock used in producing phosphorous fertilizer is imported, mainly from the U.S. The Canadian fertilizer industry does not supply only Canada; in fact, about 80 per cent of Canadian production is exported.

Fertilizer blending and distribution is considerably different in structure than fertilizer manufacturing. There were more than 230 formulation plants in 1977 and, at least in Western Canada, blending and distribution centers are springing up as small business enterprises in every medium-sized service center. These dealers purchase from one or more manufacturers, and often import bulk fertilizer, as well as provide actual spreading services. The manufacturing firms are partly U.S. or internationally owned conglomerates, and some are Canadian co-operatives. Canadian Pacific Investments also owns one manufacturing firm.

Fertilizer prices have some tendency to follow price patterns in grains as demand for fertilizer rises and falls (Chart 3-1). Prices peaked in 1975, then declined some in 1976 and 1977, but have risen again in 1978 and 1979. Much of the price increase in the 1973-74 period, however, resulted from rising energy costs. The devalued dollar has also caused costs to increase because of phosphate imports, and increasing demand by the U.S. for the Canadian product.

At the time of writing, a trial is underway in Western Canada related to pricing of fertilizers in Western Canada. Charges have been laid under Section 32(1c) of the Combines Investigation Act, charging all Western Canadian manufacturers of reducing competition in the manufacture and sale of fertilizer. Many farmers in Western Canada have believed for some years that fertilizer prices in Canada were unjustifiably higher than

in the U.S. It has frequently been possible to buy Canadian manufactured fertilizer cheaper in the U.S. than in Canada, and Canadian farmers along the U.S. border have often purchased their supplies in the U.S. even though it may have come from Canada. From an economic standpoint, therefore, it would not be entirely accurate to say that fertilizer manufacturing is highly competitive.

Chemicals[25] -- Agricultural use of chemicals encompasses a variety of insecticides, herbicides, fungicides, and animal treatments generally known as "pest control products". They are also a very important part of modern farm production representing over $170 million in 1978. Almost all agricultural chemical products used in Canada are imported from the U.S. in some form and since 1977, farmers have been unable to import agricultural chemicals directly for their own use.

The agricultural chemical manufacturing industry in Canada is basically only one of formulation. Only two basic active chemicals (2, 4-D and 2, 4, 5-T) are synthesized in Canada, accounting for about 5 per cent of total utilization. The remaining 95 per cent of active ingredients are imported. Of the farm-used chemical formulations, about 50 per cent are made in Canada and 50 per cent are imported. Only a very small amount of Canadian production is exported.

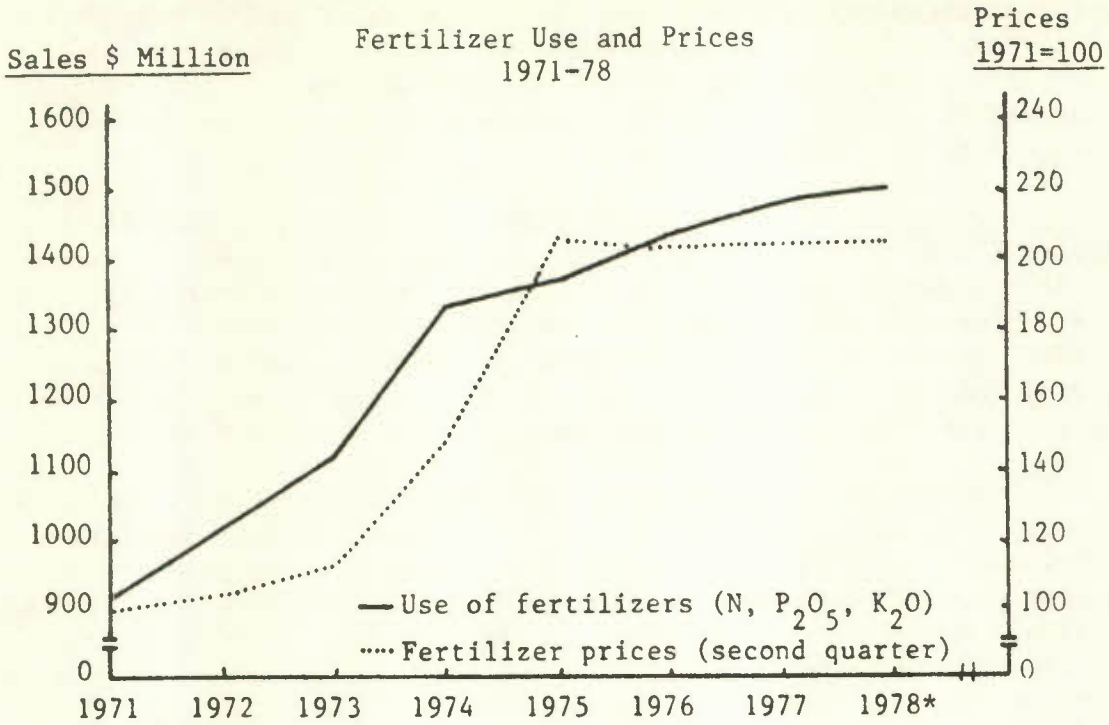
Market concentration in the industry is very high by any measurement. Only two firms manufacture the small amount of domestically produced active ingredients, and three formulation firms account for 65 per cent of Canadian pesticide sales. In addition, the Government of Canada restricts importation of agricultural chemicals. At present, dealers and farmers are effectively prevented from importing chemicals from the U.S., thereby providing further protection for the Canadian industry. Many of the firms operating in Canada are foreign owned and controlled. The fertilizer manufacturing industry employs 1,200 people.

Chart 3-2 summarizes the pattern of pesticide sales and prices since 1971. Since a significant part of pesticide compositions are petroleum based, chemical prices are sensitive to developments in petroleum pricing, and the devalued dollar affects prices because imports are so important.

Although only 2 per cent of farm expenses are attributable to purchases of pesticides, these chemicals are a far more important input to Canadian food production than their dollar share might indicate. The advances in agricultural productivity are heavily dependent on use of the variety of pesticides. Any factors which restrict pesticide use, including price levels of pesticides, environmental concerns, or lack of knowledge of their value by farmers, will operate against farm productivity and have an impact on food prices.

Chart 3-1

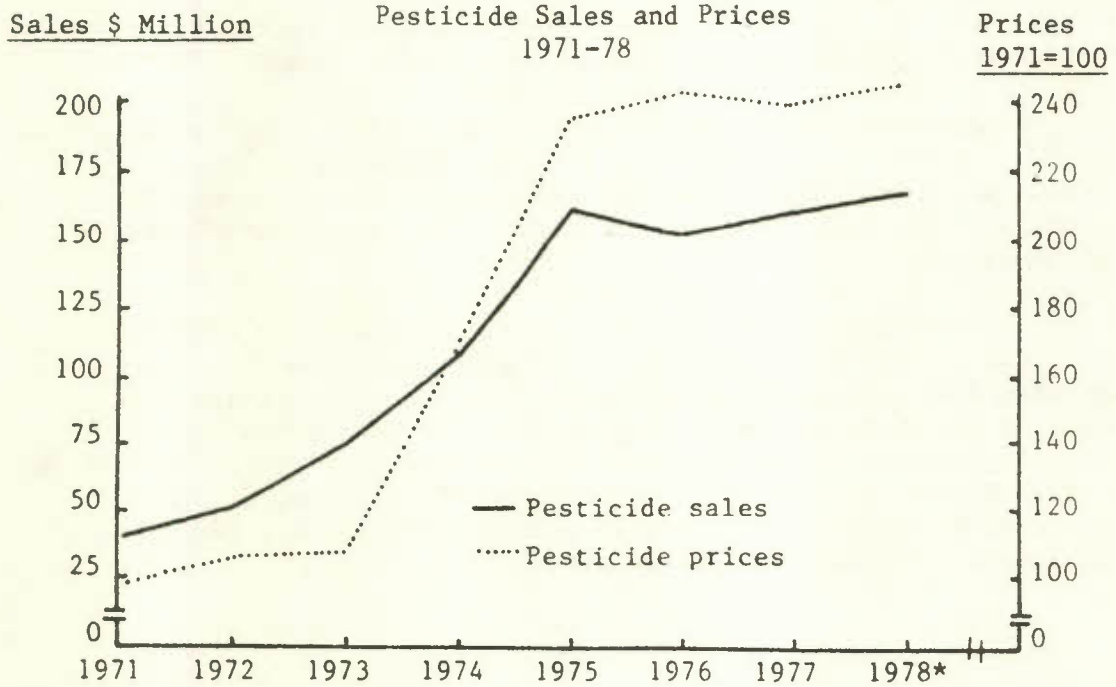
Fertilizer Use and Prices
1971-78



Source: Statistics Canada. *Unofficial estimates

Chart 3-2

Pesticide Sales and Prices
1971-78



Source: Statistics Canada. *Unofficial estimates

Farm Machinery[26] -- Since the Second World War, one of the major changes in Canadian agriculture has been a trend towards increased mechanization. More tasks have become mechanized and machinery has become larger. Farm machinery expenses now account for an average 15 per cent of farm expenses.

In the first eight months of 1978, Canadian farmers spent $928.9 million on new farm machinery, plus repair parts, which would result in a 1978 total figure of $1,251.9 million if demand for machinery and parts and prices were to remain constant. Peak years of purchasing were 1976 and 1977 when Canadian farmers spent $1,288.8 and $1,286.3 million respectively.[27]

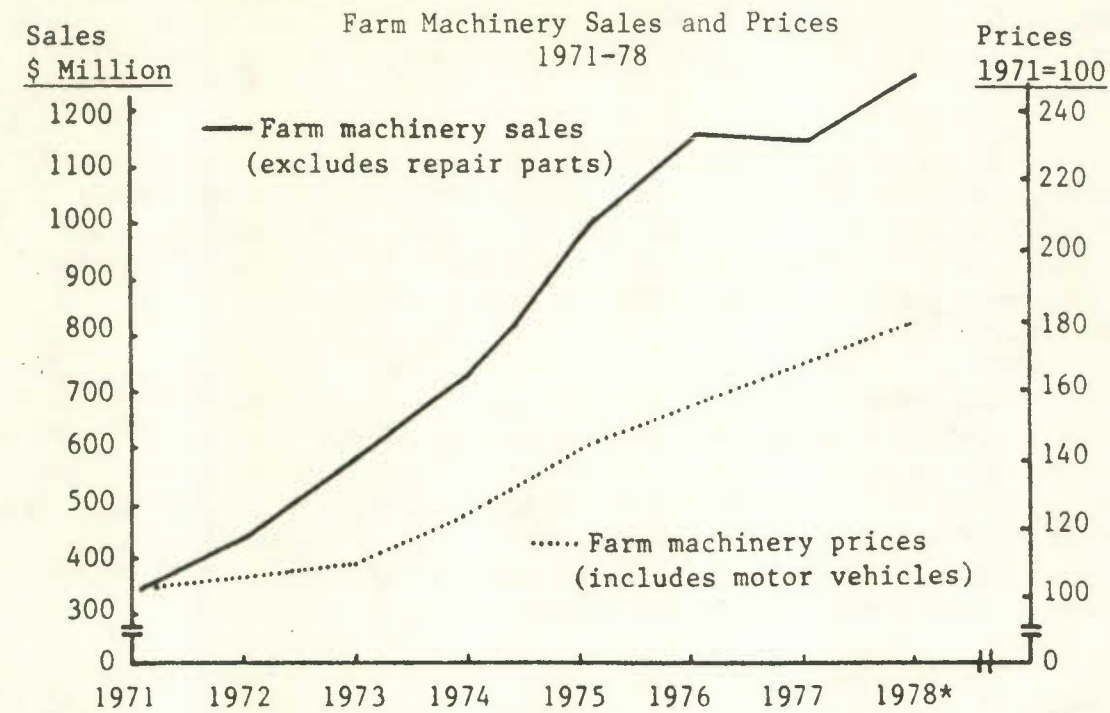
The demand for farm machinery is highly variable -- a reflection of annual fluctuations in farm incomes as well as the impacts of technological changes in farm machinery and structural adjustments in the farm sector. At various times during the seventies, there have been temporary shortages and surpluses. In 1973-75, the sudden increase in demand due to high grain prices depleted inventories quickly, and resulted in prices which rose faster then previously (Chart 3-3).

The farm machinery industry is highly concentrated. "Production and trade in wheeled tractors is dominated by a small number of North American international corporations with major manufacturing plants in Western Europe and North America."[28]

Of the eight major corporations which sell in Canada, only one -- Massey-Ferguson -- is headquartered in Canada, but even its major operations have been moved to the U.S. The four top firms -- John Deere, Massey-Ferguson, International Harvestor and J. I. Case -- alone account for 47 per cent of machinery sales, with John Deere recognized as the industry price leader. Only 15 per cent of Canadian demand for farm machinery is supplied with domestic product, and the Canadian sector as well is concentrated.

The industry has drawn some public attention in the last two decades. In the 1969 report of the Barber Commission into the farm machinery industry in Canada, it was reported that, " ... to maintain the price differences that exist between countries, farm machinery companies have had to take administrative steps to prevent tractors from moving from lower to higher priced markets".[29] Canada has, for decades, had open borders on farm machinery (but not trucks or other farm vehicles) but farmers saw lower prices for farm equipment in other countries. The pricing policies of the large machinery manufacturers described by the Barber Commission identified why Canadian farmers could not benefit from them. However, Canadian anti-combines policy apparently has been incapable of dealing with the pricing policies of this highly concentrated sector.

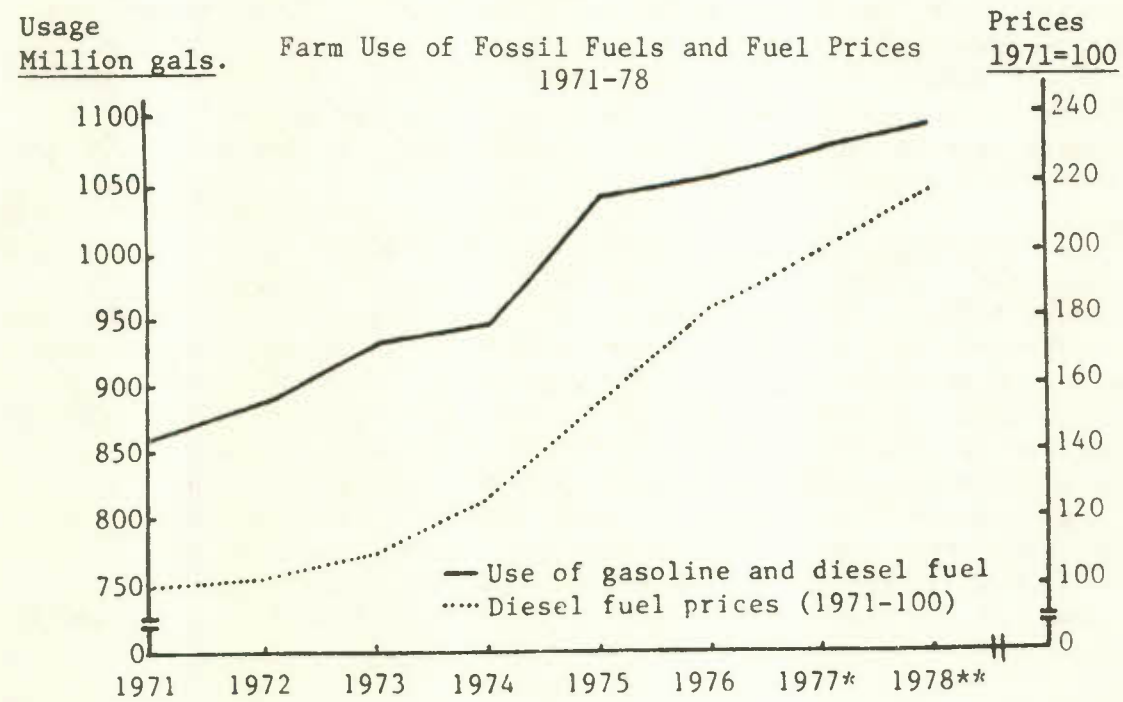
Chart 3-3



Source: Statistics Canada.

*Unofficial estimates

Chart 3-4



Source: Statistics Canada.

*Preliminary
**Unofficial estimates

Petroleums and Fuels -- Use of petroleum products in Canadian agriculture, as fuel sources, lubricants and heating sources, has become basic and extremely important as the industry has become mechanized. Recent data on the amount of petroleum products used in agriculture are not directly available, but the Agriculture Canada estimate of 8 per cent of operating expenses[30] would imply about $540 million expenditure in 1978. Chart 3-4 summarizes the growth of fossil fuels use and their prices.

The organization and supply of petroleum products are not designed specifically for agricultural purposes as are those aspects of several of the input supply sectors. Petroleum refining in Canada is dominated by the big four international conglomerates. There are other smaller independent refiner-distributors, but they tend to be unimportant in the market and in pricing. Co-operative refining and distribution is significant and adds an element of otherwise lacking competition in refining. In addition, farmers usually receive exemptions from some taxes applied to petroleum products which reduces the real price of their use. In the western provinces, taxes on gasoline, diesel fuel and other energy sources have been substantially reduced as fuel prices have risen.

Despite the utilization of more and larger machinery, direct agricultural use is responsible for only 3 per cent of Canadian energy consumption. Direct use refers to petroleum used as fuel, either for transportation or for heating. Indirect use accounts for another 4.5 per cent and includes petroleum used as feedstock for chemicals, and energy required for the formulation of farm input products. Of the total energy required by the food sector in Canada, 20 per cent is utilized in the agricultural, farming and input sector, 32 per cent is required for processing and packaging, 28 per cent is utilized in transportation and distribution, and 30 per cent is used by consumers in household food preparation.[31]

Allocation schemes for fuels under scarcity, including a bill before Parliament in 1979, give high priority to farm use of fuels. In view of the key importance of fuels and lubricants to modern agriculture, scarcities in farming would very quickly reduce output.[32] Moreover, the share used in farming is so small that a large saving in farming would be required to have any impact on total availability.

Seed and Feed -- These industries are much different in structure than the previous supply industries. That is so because each area is very closely tied to primary agriculture. Seed production is part of the overall agricultural sector, and a great deal of the feed industry represents simply inter-farm transfers. The commercial feed industry is a manufacturing process but its major input is grain.

In 1978, approximately $200 million dollars worth of commercial seed was produced in Canada, and about 10 per cent was exported. Seed production is a specialized agricultural activity, and it is often tied to a cleaning plant and sales operation. However, most seed production is done by small family operations, and except for highly specialized seeds

such as hybrid sunflowers, hybrid corn, or basic plant breedings, the market structure is very open and highly competitive.

Commercially prepared feeds have become a very important part of modern agriculture. They represent about 20 per cent of farm operating expenses but this average is highly unrepresentative of livestock operations. In specialized poultry or livestock operations commercial feed costs may represent 80 per cent of operating costs. In terms of sales volume, commercial feed manufacturing is reported to be Canada's twelfth largest industry,[33] and because of the changes in poultry and livestock production, it is also a very rapidly growing industry. This sector employs about 15,000 people outside primary agriculture in two thousand feed mills. Sales are well over $1 billion. Almost $2 million of medications are added to mixed feeds per year.

Pricing of commercial feeds is highly dependent on the prices of the basic ingredients, and prices rise and fall with the prevailing level of grain prices. Two thousand food mills of varying sizes operating in Canada at this time are mostly independently owned, although meat processors and grain companies operate some of the larger mills. The industry is generally considered to be overbuilt; eastern Canadian feed mills are operating at about 50 per cent capacity, while western mills are doing slightly better at 80 per cent.

A characteristic of this industry has been the growing trend towards vertical integration. For instance, in Quebec 80 per cent of poultry production is produced under contract to feed suppliers; this ensures a market for the feed suppliers as well as a market for the poultry. Many hog farms in Quebec are also vertically integrated, either to feed suppliers or to packing houses through production contracts. In fact, much of the growth in animal agriculture in Quebec has occurred through vertical integration. Some vertical integration with feed manufacturers exists in other parts of the country. The exact extent of vertical integration is unknown, but it is thought not to be a significant factor in pricing.

Farm Labour -- In 1951, agriculture accounted for 18 per cent of the labour force. Expenditures on labour -- through wages and wages-in-kind -- amounted to 13 per cent of total farm expenses. By 1975, agriculture employed only 5 per cent of the work force, and employment of non-family labour required only 9 per cent of farm expenditures. This decline in farm employment has reversed itself somewhat since 1975, mainly because of higher farm incomes, larger-sized farms and an improved worker supply[34] (Chart 3-5).

Canadian farming is characterized by a large number of small units, where the farm operator and his family have traditionally supplied the labour and management on these farms. According to the data from the 1976 Census of Agriculture, less than 35 per cent of all farms use hired labour and less than 7 per cent employ paid workers on a yearly basis. The total labour output on farms had been declining since the forties in response to higher labour productivity and increased non-farm

opportunities. In the short-run, however, during times of high national unemployment, unpaid family farm workers tend to increase. Some young people who find they cannot get employment in the non-farm sector return to the farm.

Wages and compensation in agriculture did not keep pace with the industrial wage sector until well into the seventies. Partly because of this, partly because of more attractive employment opportunities off the farm, and partly due to the specialized nature of much of the farm work, there are chronic shortages of experienced and skilled farm labour for year-round employment. However, the growth in farm size and mechnization in recent years has increased wages on larger farms. Seasonal shortages in peak periods for such labour-intensive crops as vegetables and fruits persist. Average farm wages in May 1978 were estimated at $3.28 per hour and $594 per month without board, and $3.73 per hour and $659 per month with board. The average hourly farm wage without board is now well above the industrial minimum wage in each province, despite the fact that in most provinces farm workers are excluded from minimum wage legislation. Unionization of farm labour is very uncommon and has not become an issue in Canada as it has in parts of the U.S.

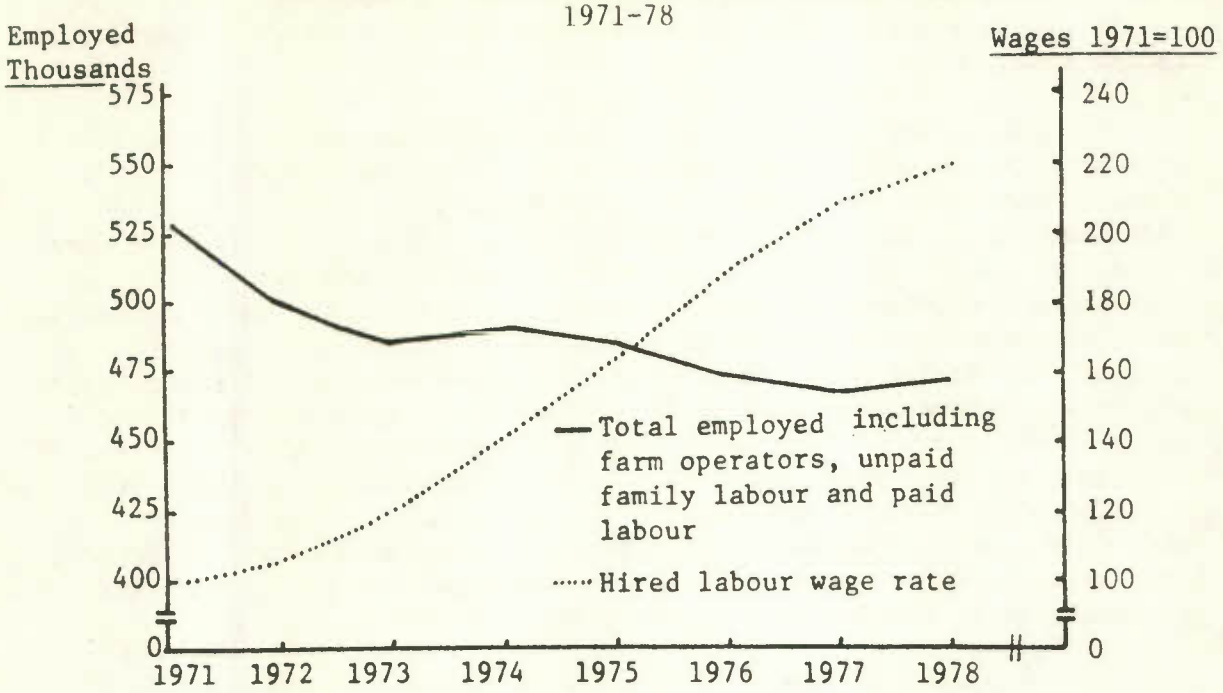
Capital and Credit -- Canadian agriculture is a very heavy user of credit, not only for purchases of land but for purchases of livestock and equipment, farm improvements and operating expenses. Average farm debt in relation to total farm investment has increased the debt-equity ratio, although only marginally. Credit outstanding in 1977 amounted to some $10.4 billion, an increase of 19 per cent over 1976. Both short-term and long-term debts have increased markedly during the seventies. Banking institutions, which were involved only in short-term agricultural lending a few years ago, have now developed specialized agricultural departments to deal with the demand for long-term credit (Chart 3-6).

Interest rates on loans granted to farmers are determined by the Bank of Canada prime rate and move with it. After a drop in 1977, rates escalated throughout 1978. However, due to heavy involvement by the federal government's Farm Credit Corporation, the average interest paid on all agricultural loans will probably be less than that for loans in most other sectors of the economy.

Perhaps more than any other inputs, the impact of borrowing costs on individual farmers will be highly variable. New or expanding farmers are likely to be heavily committed on credit. Tight money or increases in interest rates may significantly restrict their actions or increase costs. Established farmers may use very little credit, and have only their opportunity costs change if credit conditions change. Because of the relatively low debt-equity ratios, on average interest costs are relatively important.

Chart 3-5

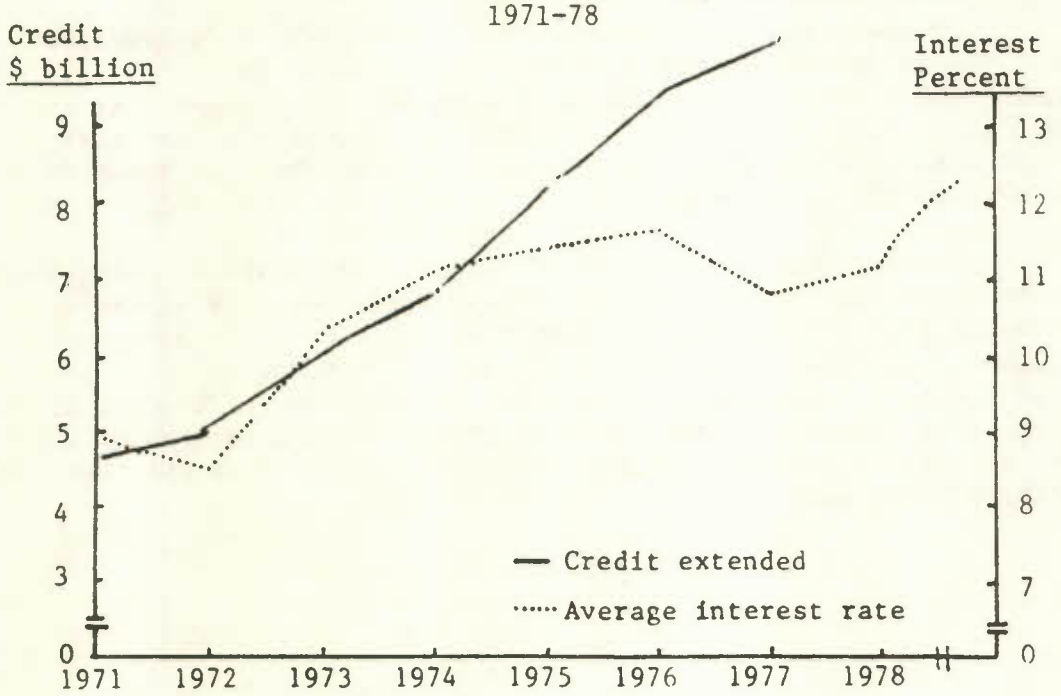
Total Employment in Farming and Hired Labour Wage Rates
1971-78



Source: Statistics Canada.

Chart 3-6

Credit Extended to Farmers and Average Interest Rates
1971-78



Source: Agriculture Canada.

Processing and Manufacturing

Food processing is the largest single manufacturing industry in Canada; it pays the largest amounts in wages and salaries in Canada, spends most on materials and supplies, and produces the largest value added among manufacturing industries. Twenty-five of Canada's two hundred leading companies are in the food business. A breakdown of the sector is summarized in Table 3-4.

The average level of market concentration is similar to that of all manufacturing firms -- the top four firms produce about 50 per cent of the value added. Some sectors of the industry, however, are more concentrated than others (Table 3-5). Six sugar refining companies control all of the Canadian sugar refining, and import competition is very limited. The top four biscuit manufacturers and top four cereal manufacturers control over 65 per cent of sales with imports accounting for about a fifth of the market. The top four vegetable oil processors control over 75 per cent of sales with some import competition. At the other end of the scale, the top four bakeries control less than 35 per cent of sales, with significant local competition from about 1,500 small retail bakeries found in almost every location in Canada. Conversely, local competition may be less keen than at the national level. For example, vegetable processing at the national level is relatively unconcentrated, but in some areas such as New Brunswick, only one processor is available. Similarly, several meat packers operate within the Toronto-Hamilton area, but only one plant processes hogs in the province of Saskatchewan, and meat processing in Alberta is now handled by about four firms out of Edmonton and Red Deer.

Perhaps one of the most significant areas in the processing/manufacturing-food price question is that of productivity. It is reasonable to expect a direct relation between low or falling productivity and increasing product prices. Chapter 5 goes into this area in more detail. However, the data in Table 3-6, the only data available on this question, indicates that the Canadian food processing sectors have some problems in productivity. There are likely a variety of reasons for these productivity problems, many of which may be structurally based. Market concentration, tariffs, tax rates, labour arrangements, scale of operation, regional scale and diversity of production, and in the case of supply management program the existence of restrictive marketing boards, may all be causes of difficulties in achieving improved productivity performance.[35] The next section discusses the relationship of productivity and profit rates in the context of food prices.

Finally, it must be noted that the discussion here, and usually elsewhere, neglects Canada's large and important grain handling system. It is very much part of food processing, and of the food system. It is responsible for assembling, storing and placing in export position, most of Canada's interprovincial grain movements and all of our export shipments. Combined with the Canadian Wheat Board, which is a (federal) Crown Corporation, the grain handling, selling and exporting firms would easily be Canada's largest industry representing sales in the billions of dollars.

Table 3-4

Major Sectors of the Canadian Food Processing Industry
1974

Sector	Number of Establishments	Employees	Value of Shipments	Value Added	Salaries and Wages Paid
			(millions of dollars)		
Slaughtering and meat processing	487	32,836	3,579	635	337
Poultry processing	95	8,930	511	101	64
Dairy and cheese processing	556	27,316	2,083	482	257
Fish processing	348	18,774	576	225	126
Fruit and vegetable processing	245	19,200	865	347	146
Flour milling and breakfast cereal manufacturing	49	4,861	479	129	49
Biscuit manufacturing	41	8,002	238	103	64
Baking	1,680	26,578	727	376	217
Confectionery manufacturing	103	9,615	375	183	73
Sugar refining	15	2,720	651	69	30
Vegetable oil processing	8	748	269	35	8
Miscellaneous food manufacturing	256	19,508	1,382	532	187
Total	3,883	179,088	11,762	3,217	1,558

Source: Morris, The Competitive Characteristics of the Canadian Food Processing Industry, 1974, p. 28.

Table 3-5

Concentration Ratios for Food Manufacturing Industries
Canada, 1972

Industry	% of Industry Value of Shipments	
	Four Leading Enterprises	Eight Leading Enterprises
Slaughtering and meat processors	54.0	62.1
Poultry processors	38.3	54.3
Fish products	42.5	54.5
Fruit and vegetable canners and processors	39.8	55.9
Dairy products	33.0	45.9
Cereal products	66.8	85.4
Biscuit manufacturers	73.4	86.8
Bakeries	33.5	47.8
Confectionery manufacturers	49.4	70.4
Vegetable oil mills	75.6	-
Sugar refineries	n.a.*	100.0*
Miscellaneous food processors	35.2	51.3

* 1965 data.

Source: Agriculture Canada, A Review of the Canadian Agriculture and Food Complex - The System, p. 181.

Table 3-6

Year-to-Year Percentage Change in Labour Productivity, Food Processing
1964-74

Industry Sector	Average 1964-70	1971	1972	1973	1974
	(per cent)				
Meat packing	2.3	4.1	-0.4	-3.0	-5.5
Fish processing	n.a.	-7.2	-7.4	-10.1	-11.7
Baking	1.0	2.3	-0.3	1.7	0.0
Dairy processing	7.7	10.4	8.6	2.1	1.6
Fruit and vegetable processing	1.1	7.2	6.1	-0.2	-3.0
Grain processing	n.a.	3.9	-0.4	0.1	-5.5
Oilseed processing	n.a.	n.a.	n.a.	n.a.	n.a.
Miscellaneous food processing	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Food Prices Review Board, Food Company Profits and Food Prices II, October 1975.

In 1976, there were about 4,000 country elevators at 1,500 locations in the Prairies. Terminal elevators are located at the major port facilities on the West Costs, St. Lawrence system and Churchill. These facilities are owned by eight grain companies, four of which are farmer co-operatives and one which is a large U.S.-based international grain company, plus some smaller grain companies. Fees for handling, storage, moving and selling grains within this system are regulated, as is product movement, by the Canadian Wheat Board and the Canada Grains Commission. The performance of this part of Canada's food system, along with the railways, plays a significant role in pricing of grains and returns to grain producers. As a consequence, it also directly influences regional and national economic activity.

Food Distribution

The structure of Canadian food retailing, and its competitiveness, is full of anomolies. One one hand, there were 22,000 retail food stores in Canada in 1975 which participated in $12 billion of sales.[36] The large chain stores, on a national basis, accounted for about 56 per cent of total sales. Neither of these statistics suggest high market concentration, and they might suggest a highly competitive industry. But the picture of local markets, the place where consumers buy food, is very different. In some major cities, market concentration rises to the point where three or four firms account for 75, 85 or 95 per cent of sales. Even more paradoxical, in many small communities, particularly isolated communities, all retail food sales may be concentrated in a single retailer's hands. The retailer in these instances may be the traditional "mom and pop" organization of which many people seem still to speak fondly, it may be a large urban or farm based co-operative, or it may be the Hudson's Bay Company.

Toronto is probably the most "competitive" center for food retailing in Canada, and retail price levels show it. Thunder Bay, on the other hand, is one of the most concentrated urban food markets in Canada. However, Thunder Bay's central location between Winnipeg and Toronto appears to have tempered the effects of its high market concentration in the same way that imports may affect a concentrated national market if the borders are reasonably open. The "mom and pop" stores have the highest prices and least patronage; the large retailers which have the market power appear generally to have lower prices and they certainly have the patronage. Finally, a report by a well-known business economist concluded:

> "High concentration is associated with higher prices; high concentration does not contribute to inflation in this field."[37]

How can these apparent contradictions exist together, and what have they to do with food price formation? Unfortunately, our body of knowledge on the food industry does not provide a great deal of solid information on food retailing. Despite the criticism that is continually directed at food retailing as food prices rise, the Mallen study undertaken

for the Food Prices Review Board appears to be the only useful research on retail concentration which has been produced in the past decade. Perhaps this situation represents the most serious anomoly regarding food retailing.[38]

There are four "giants" in Canadian food retailing -- Dominion, Weston-Loblaws, Safeway and Steinberg's. With the exception of Safeway, they are all Canadian organizations. Dominion and Weston-Loblaws operate across Canada but not in each major center; Safeway is expanding from its base in Western Canada into parts of Ontario; Steinberg's operates mainly in the heavy population centers of Ontario and Quebec. These four giants, along with A & P of Canada Ltd. (a U.S. based firm) are the major corporate chains. Three other chains are also important in the industry -- I.G.A. Canada Ltd. and Provigo Inc. are voluntary chains, and Federated Co-Operatives Ltd. is a co-operative. Combined, all of these organizations account, apparently, for about 55 to 60 per cent of total retail food sales, through less than 8 per cent of the stores. Market shares held by the large retailers have risen over time, and vary considerably by region. According to Mallen,[39] the top four firms in each area had the following market shares in 1973:

	Per cent
Quebec	54
Atlantic Canada	73
Ontario	62
British Columbia	70
Prairies	84

In some cities, the shares go as high as 98 per cent. For example, the top four organizations in Thunder Bay accounted for 98.4 per cent of sales; in each of Regina, Calgary, St. John's, Edmonton, Halifax, Saint John and Saskatoon the top four organizations had more than 90 per cent of retail sales in 1973. The data for 1978 would likely not be significantly different, but, if anything, would probably indicate slightly more concentration. Very clearly, these data indicate that market concentration in urban food retailing is extremely high in some regions. Data do not exist on smaller and isolated communities but would be expected to indicate even more concentration.

Determining the impact of the high concentration on food prices is difficult. Presumably, market power shows up in several different ways. Industrial organization theory suggests that higher prices, price leadership, price discrimination, high advertising and selling costs, and pressure on suppliers may be associated with high concentration. Food processors and distributors will talk privately about pressures brought on them by retail procurement practices, and there is currently a commission of inquiry investigating some of these practices in Ontario. It is accepted by some that price leadership occurs in some food markets, and Devine and Hawkins argued that price discrimination was observed in Edmonton during the late sixties.[40]

Mallen produced some evidence on several other of the issues related to market concentration. He concluded:

> " ... that Canadian retail trade does have very high levels of economic concentration in urban areas; that these levels are rapidly growing; that the four national giants play the major role in this phenomenon; that barriers to shopping centre sites and economies of local advertising appear to be the basic determinants of concentration; that the negative impacts of high concentration include a) overstoring and extra profits which lead to higher price levels and b) less product variety and less free services."[41]

On the basis of his analysis, Mallen also concluded that the consumer food bill might be reduced by 4 to 6 per cent, depending on the region, if concentration could be reduced and competitive forces made to work toward price reductions. But this amount of reduction, if it could be achieved, would be a gradual and once-for-all kind of food price reduction. In this context, therefore, significant as the reduction would be, it would have very little to do with the rate of price increase in food prices which Canadians have experienced. This change, according to Mallen, would affect the level of food prices but not how food prices change over time.

These results are a valuable contribution to our knowledge of food retailing. They do not, however, go far enough in identifying the contribution of the retail sector to food price formation. The fifth chapter of this report indicates that there is some more recent evidence to suggest that retailers in their pricing practices do add to price increase. Similarly, the beef margin data in the same chapter show that retailer margins on beef may actually have increased in percentage terms at the same time that beef prices have been rising. Any market structure that permits sellers to add on a constant or rising percentage mark-up as food prices are rising automatically contributes to the process of price increases.[42] Nor do these results indicate what the impact of price leadership is, what effects particular buying procedures have, or how labour settlements might differ if retailing were more competitive. These and many other structural as well as conduct questions remain.

The real issues vis-à-vis food retailing can be summarized in two fundamental questions. The first involves the nature and importance of economies of size in purchasing, distribution, location, and selling in food retailing. The evidence suggests that in at least some of their functions, larger firms achieve considerable economies. At the same time, there are examples of small retail chains which are very prosperous, and large organizations which appear to owe their survival to the umbrella protection provided by a concentrated market.

The second question is a very pragmatic one, symptomatic of the modern Canadian economy: what is the means by which assurances can be given that the economies of size that do exist, or can be developped, will

be reflected in an efficiently organized and operated food retailing sector, so that retail margins at any particular time are as low as possible? This, in turn, is a question of direct regulation or of competition policy. Given our performance in other areas of direct regulation, and the relative ignorance of the food retailing industry by those who would likely become the regulators, one would have to be philosophically committed to the values of regulation to expect better performance by this means. At the same time, competition policy in its present form is of little value and the administrators of competition policy apparently pay little attention to food retailing. And if the problem is fundamentally structurally based, market concentration is still increasing. Presented in this fashion we are faced with a genuine dilemma. This situation is certainly not unique to food retailing; the food industry and the Canadian economy have other examples. However, given the prominence of food price questions, and the prominence of food retailing in the food industry, it is one of particular significance.

Governments

It is impossible to provide much more than a crude taxonomy of government involvement in the food industry because its scope is so vast. It is absolutely impossible at this time to indicate even the direction of influence of government on overall food prices, let alone the size. Presumably, this is one of the questions which will be analyzed under the Regulation Reference given the Economic Council of Canada by the Prime Minister in 1978. To even document the magnitude of government expenditure in the food industry is difficult because of the scope of the industry and the number of governments and government departments involved. One estimate of federal and provincial involvement placed expenditures in fiscal 1972-73 at $1.2 billion, and at somewhat over double this amount in fiscal 1976-77. It was estimated that about $600 million was spent on primary agriculture in 1972-73, and about $1.3 billion in 1976-77.[43]

Involvement at the level of primary agriculture can be classified as follows:

(1) price and income stabilization of support;
(2) production and marketing services;
(3) insurance and credit services;
(4) research; and
(5) extension, information and educational services.

These activities may be performed at both the federal and provincial levels of government.

But other government departments are also involved. The federal Department of Consumer and Corporate Affairs administers several Acts which influence food. It administers the competition policy, registers federal corporations, checks weights and measures, monitors advertising claims, and administers most of the packaging and labelling legislation, including bilingual labelling. The federal Department of Health and Welfare

administers the Food and Drugs Act which protects food purity and safety, and is responsible for any efforts made towards improving national nutrition. Until recently, the federal Minister of Industry, Trade and Commerce was responsible for Statistics Canada which produces much of the statistical data on the food industry, and the department is responsible for the metrication process through which the food industry is moving. ITC is also responsible for domestic and international aspects of product and market development for the industrial portions of the food industry and for the development of international markets for primary agricultural products. The federal Department of Finance formulates tax and tariff policy and these, of course, influence the food industry. Finally, the Department of External Affairs and the Canadian International Development Agency are involved in some aspects of international transactions of food products and in food aid. Most provinces have counterpart departments with similar, related, and often overlapping activities.

The consequence of government activity in the food industry is, as already stated, not easily assessed. Canada certainly has a relatively safe, clean, appealing and consistent supply of food products. Canadian food products in international trade, apparently, find acceptance because of a good reputation for quality and consistency. Prices have over time had downward pressure brought to bear by government financed research and technology. However, some of the farm support programs, metrication, health measures, and packaging and labelling requirements have produced upward pressure on food prices. As with most government activity, the balance between these opposing pressures is determined by political and bureaucratic means, not by economic arguments.

IV FARMERS AND FOOD PRICES

The material presented so far in this paper has been in terms of retail food prices, and macro measures of the food system. These considerations are basic to understanding how the food system operates but they do not describe the price formation process itself. The next two sections attempt to provide information on how food prices are formed, first by reviewing farm price determination and then by reviewing the limited information available on marketing margins in the processing and distribution sector. There is no overriding reason to begin with farm prices. To do so does not imply that Canadian farm prices determine Canadian food prices; to assert that they do would be an oversimplification. But neither would it be accurate to say that middlemen's margins, or international food prices, determine Canadian food prices.

Since much of the food that we eat begins as Canadian farm production, the farm level seems to be a reasonable starting point for the discussion. Moreover, much of the variability in food prices originates with, or is manifest in, variation in farm prices. The approach therefore is to describe briefly the market organization and pricing process of commodity groups which are defined at the farm level in Canada.

This section also reviews some of the considerations on farm incomes, farm inputs, and agricultural policy which are part of farm-to-food price discussions.

Farm Price Formation

Summarizing the nature of farm price formation in Canada is a very difficult task. This is so because there is no single, or even a small group of, organizational form(s) which describe it. The popular view may be that farm prices are determined by marketing boards. Even if this view were true, which it very definitely is not, the multitude of types of marketing boards would still require explanation. Conversely, some would argue that farm prices, even those under the most restrictive kinds of marketing boards, are "market" determined.

Difficult or dangerous as generalizations may be, some can be made:

1) Canadian farm prices are relatively market oriented. The majority of farm prices are subject to as openly competitive conditions as other major industries in Canada; the markets for farm products in Canada are more open than in most other countries of the world. Policy developments in Canada in the seventies have substantially altered this condition in some major commodity areas (dairy, poultry, eggs, domestic bread wheat), and in relation to the U.S., but generally the statement remains true.

2) The impact of marketing boards cannot be assessed until the particular board is specified. Some marketing boards have very little to do with fundamental price conditions, some have none, while a few do determine particular Canadian farm prices.

3) International grain prices have an important impact on most Canadian farm prices. Grains, oilseeds and livestock are all tied together in costs and pricing; a very large portion of Canadian grains are exported. Factors which influence Canadian grain prices sooner or later ripple through much of Canadian agriculture and food. The years 1972-76 are proof of this generality.

4) Increasing government involvement, and protection for the farm sector, has tended toward greater insulation of Canadian agriculture from the effects of market forces. The growth in supply management in dairy, poultry meats and eggs has removed market pressures from producers; grains and livestock stabilization payments remove some downside risk to production; proposed changes in tariff levels would further protect fruit and vegetable producers; the Two-Price Wheat Act increased the domestic wheat price and protects Canadian farmers from variations in international wheat-for-processing sales.

The remainder of this section briefly outlines the structure or structures of each major commodity group market in Canada and identifies the major price determining forces.

Grains and Oilseeds -- These farm products represent from 30 to 35 per cent of the value of farm cash receipts in Canada, but they exert an even greater proportional impact on the pricing process for agricultural products. Grains and oilseeds are the major cost component of all livestock, dairy and poultry production. For example, about 50 per cent of the cost of production of milk will be feed costs, primarily grains, while up to two-thirds of poultry costs are made up of ration costs.

The particular structure of grains and oilseeds marketing in Canada depends upon: (1) the specific commodity, or sometimes the end use of the commodity, and (2) the region of the country. There is no one system of marketing grains and oilseeds. The variety ranges for wheat, for example, from open market domestic feed wheat sales, to administered prices on domestic bread wheat sales, to the Canadian Wheat Board (CWB) monopoly for export sales, to a provincial marketing board which handles exports of Ontario winter wheat. (Alberta winter wheat is sold through the CWB.) Rapeseed and flax, the two major Canadian oilseeds are open market traded but subject to CWB quotas; soybeans (mainly grown in Ontario) have no such restrictions. Barley may be sold on the open market for domestic feed grain, but malting barley and all export sales are the jurisdiction of the CWB.

This maze does have a structure. The CWB controls all export sales of prairie-grown grains and regulates the deliveries of oilseeds

from the prairies. Domestic feed grains from the prairies, and corn[44] and soybeans grown primarily in central Canada, are not subject to CWB control. The basis for grains and oilseeds pricing is their respective values in human consumption or as animal feed, and to a small extent their value in alcohol production or industrial uses. The major human usage of wheat is for flour used in bread and bakery products. But wheat is also used as animal feed, particularly poultry rations. Any feed grain used in an animal feed is valued primarily according to its energy value and protein value. Oilseeds are also used in animal feeds because, after extracting the oil, a valuable high-protein meal remains. Consequently, the prices of oilseeds are determined by the combined value of oil and protein meal which they produce.

To a considerable extent, many of these commodities are substitutes in usage. Moreover, they are also substitutes on the same land base and for basic production resources in many regions. Consequently, there are a set of fundamental forces on each of the demand and supply side of the price determination equation which cause grain and oilseed prices to move together.

A dominant pricing factor is international pricing of these products. For example, Canadian wheat competes in foreign markets with wheat from the U.S., Australia and Argentina; Canadian barley competes with U.S. corn and at times with EEC barley; and Canadian rapeseed competes with U.S. and Brazilian soybeans. The U.S. and Canada tend to be dominant forces on the supply side of international bread wheat prices. U.S. corn soybean production tends to dominate feed grains prices. But certainly any change in market conditions in a major importing country, or a significant change in one of the exporting countries, will be reflected in a change in the international price of the same or closely related products. This in turn becomes reflected in Canadian prices for the same products, and ultimately in all Canadian grains and oilseeds. If the change at this latter level is significant it will also likely alter profitability of livestock production, and therefore may affect supplies or prices of these products. Canada is not important enough in any international market to determine prices; domestic prices of grains and oilseeds, therefore, will vary as the value of the Canadian dollar changes. The decline in the Canadian dollar has raised all domestic grains and oilseeds prices since 1976.

Canadian marketing institutions or policies also influence this generalized process of grains and oilseeds pricing. Imports of the grains controlled by the CWB can occur only by license. Consequently, the domestic market for Canadian wheat, oats and barley is basically isolated from external competition. This permits prices to be at different levels than if free trade in these grains were permitted. For example, the Two-Price Wheat Act establishes that the price of wheat used by domestic millers will be between four and five dollars per bushel. A similar band exists for Durum wheat used in pasta and bakery products. Consequently, irrespective of world wheat prices, domestic millers will pay between four and five dollars per bushel for their supplies of wheat as long as the legislation is in place.

Another example is the domestic barley market. Under normal market conditions, domestic barley prices would be corn competitive in terms of energy and protein value. Corn is higher than barley in energy, but lower in protein. Consequently, relative corn-barley prices should depend upon relative energy-protein source prices. In the 1978 CWB crop year (August 1978 to July 1979), domestic barley prices were well below corn competitive prices and below U.S. barley prices. Indeed, in some areas, barley and oats prices were similar. The primary cause of this situation was the inability to move enough barley into export to raise the domestic price to corn competitive levels, and the willingness or necessity of producers to move barley off their farms even at the low prices. This situation represents a serious form of market failure resulting from a combination of inadequate transportation and handling facilities, which led in turn to CWB delivery decisions having an impact on barley prices. The reverse situation was true for a period in 1974-75 when barley was higher priced than corn in international markets and domestic users of barley had difficulties in procuring supplies as barley producers held out for the higher international prices. The malting barley market (i.e., barley used to manufacture malt for the brewing, liquor and processed food industries) is also an administratively priced market. The CWB determines the price of malting barley, regulates its delivery to malters, and in fact, determines the viability of the malting industry. This market represents less than 10 per cent of Canadian barley sales.

With these and a few other exceptions, the grains and oilseeds markets in Canada are market-oriented and generally tend toward internationally competitive price levels. A commodity exchange exists in Winnipeg on which the domestic feed grains (wheat, barley, oats) and flax, rapeseed and rye are traded in cash and futures forms. The Winnipeg Commodity Exchange is, however, more important for providing a vehicle for market information and as a hedging mechanism than it is as a real basis for price determination for Canadian farm products.

Beef -- Beef prices have drawn considerable public attention again because of their rapid increases in 1978 and early 1979. These have resulted from the 70 per cent increase in live cattle prices experienced since May 1978.

Live cattle prices in Canada are determined by market forces which operate within Canada and the U.S., and at times and to a small extent in Oceanic beef. Because of our proximity to the U.S., and its size in relation to the size of the Canadian market, the U.S. is our dominant trading partner. Any movements in U.S. cattle or beef prices become transmitted into Canada regardless of the supply and demand balance for beef in Canada itself. This occurs because the border is open and tariff barriers are not high enough to constitute an effective barrier to entry. Although at differing times during the past decade, Canada and the U.S. have restricted cattle movements, the border is still relatively open and trade barriers have only a limited impact on cattle or beef prices. Of far more importance to Canadian-U.S. price spreads today is the low value of the Canadian dollar.

To understand beef pricing in Canada, one must understand the "beef cycle". Beef producers are totally free to use their resources as they choose. However, a major decision to increase production requires upwards of four years to realize the production. Since price forecasting is as hazardous and uncertain (and mistakes more expensive) to farmers than to bureaucrats or economists, beef producers do not know the future with any degree of certainty. The decision to increase or decrease production therefore is made by thousands of relatively small units on the basis of imperfect knowledge of future conditions. If conditions look favourable, there may be a tendency toward expansion, but it takes years for the expansion to occur. If conditions look unfavourable, herd liquidation can occur on a wide scale, and, although more rapid than the expansion phase, even this occurs over a prolonged period. Collectively, the impact of these decisions means surges or withdrawals of production which, when meshed with market demand, mean the opposite for prices, i.e., decreases and increases. That is the "beef cycle".

Because of the four year lag between the production decision and actual beef production, the beef cycle takes about four to five years between major turning points. For example, beef prices were "high" in 1969, "high" again in 1973, and "high" in 1978-79. What also must be remembered about the cattle and beef market is that "high" has always been counterbalanced by "lows"; indeed, it would not be a true cycle if this did not happen. Today's relatively high beef prices will be followed by a decline relative to other prices and relative to production costs if the market is left to its relatively open operations.

In order to fully understand the beef market, several components of cattle production must be understood. First, domestic table beef, i.e., steaks, roasts, etc., that typically are found in the supermarket in the fresh beef form, are derived from a production process that includes three distinct phases:

(1) Cow-Calf operations -- carrying cows and rearing calves to the 300 to 500 pound weight, usually on rangeland or uncropped land;

(2) Stocker-Feeder operations -- growing calves out to the "feeder" weights (600 to 800 pounds) on rangeland or in feed lots; and

(3) Finishing operations -- finishing the feeder animals to market weight (1,000 to 1,200 pounds) in feed lots with high energy feed.

Depending on the breed of animal, from weaning to market weight may require up to eighteen months. The animals involved are beef breeds of steers and heifers, and a few dairy steers. These stages are often performed by different people at different locations across the country. Generally, stockers and feeders move east and south from Alberta and Saskatchewan, into Ontario and some of the West-Central States. Cow-calf operations provide the input to stocker operations and the input into feed lots. Feed lots provide the inputs to packing plants, where beef becomes a reality.

The significance of these stages, and of the flow of cattle and calves across Canada and the U.S., is that it is an interrelated process with many price determining forces. The profitability of cow-calf operations obviously depends upon what feed lot operators will pay for stockers or feeders. But it also depends on feed costs since feed is a major component of the final cost of feed animals. In 1978, and early 1979, all segments of the industry enjoyed buoyant times because beef prices were rising and feed was relatively low priced. During 1973 and 1974 as feed costs and beef prices rose dramatically, feed lot operators lost money while cow-calf operators originally made money. Subsequently, in 1974, even with higher than expected beef prices, cow-calf operators received low prices for their calves. The same was true for stockers. Currently, all segments of the industry benefit from the low value of the Canadian dollar which creates upward pressure on Canadian cattle prices.

The second part of the cattle-beef market that must be recognized is the processed meat portion. Much of Canada's hamburger, most of our processed meats such as bologna, sandwich meats, weiners, and some of the specialty restaurant "high priced" cuts are derived from two sources which often go unnoticed -- cows and bulls, and imported frozen boneless beef from Australia and New Zealand. These sources represent a very significant share of total beef supplies. For example, dairy cattle supply as much as 40 per cent of Canadian beef production but little of it finds its way through the conventional steak-roast route. In 1975 and 1976, when dairy producers were forced to cut back their production, dairy cow slaughter was an important factor in keeping downward pressure on cow-calf prices in Canada. Similarly, frozen-boneless beef is used in large volumes for hamburger and other processed meats. Consequently, a complex set of domestic forces, including profitability of cow-calf and feed lot operations, conditions in the dairy industry, prices (and movement) of domestic grains, and international forces, come together to determine Canadian cattle prices. The cost of the basic animal to processors and retailers, determined by the price received by the producer, represents a large share of retail beef prices. Consequently, these forces become important, but not the only, determinants of final retail beef prices.

Hogs -- With the exception of Quebec, hogs in all major producing provinces are sold through producer marketing boards. These are a particular kind of marketing board, however, which function only to collect and sell hogs rather than regulate supply or price. As a result, these boards only assist in price determination and producer payment, and have very little to do with determining the level of prices. Some boards are more active than others in their selling procedures, and two provincial boards (Alberta and Manitoba) have begun contracting hogs to domestic packers.

On balance, therefore, hog prices are determined by the more or less free interplay of market forces in the North American market in much the same way as beef. Pork cuts move freely across the U.S.-Canadian border in both directions, and, influenced by the exchange rate, Canadian producer hog prices tend to follow the pattern established in the U.S. Hog production in the past two decades in Canada and the U.S. has moved

substantially towards enclosed housing, and is becoming more of a continuous production process. There remains, however, remnants of the traditional "hog cycle" which ran about two years up and two years down. The cycle has been less clearly defined in the seventies because of the magnitude of the shocks which have occurred, but it is still a significant factor in hog price determination.

A major determinant of hog supplies in Canada has been the health of the western grains economy as western farmers produced hogs if they could not sell grain. In the past two years, Quebec has rapidly increased hog production, actually surpassing Ontario's production in 1978. Although this development will alter regional price relationships in Canada, overall price levels will be determined more by U.S. production than by Canadian, unless trade conditions are altered by governments.

Dairy Products -- Pricing of the output of dairy farms in Canada is the most rigidly controlled administered pricing system in Canadian agriculture. There are two sets of marketing boards on the two institutionally defined milk markets. Provincial milk marketing agencies regulate the volume and prices of milk used for drinking in the fresh form -- fluid milk. The Canadian Dairy Commission (CDC) establishes the price, regulates volume of production, administers import quotas on butter and cheese, and administers the federal subsidy on all milk used for manufacturing purposes -- industrial milk. Both of these sets of regulations can appropriately be termed supply management schemes.

The system of determining fluid milk prices varies between provinces. However, the process has become institutionalized to the point where some form of production cost pricing is typical, with quotas matching supply to demand at the established price. The pricing process under the CDC is a complex of factors. The federal government is committed to having dairy producers meet production costs, determined in relation to how a compound index moves. The farm price is calculated in relation to a support price for butter and skim milk powder, with deductions for estimated processing costs. These estimated processing margins become, in effect, a regulated processing margin. The net support price for industrial milk obtained in this way is then augmented by a subsidy from the Agricultural Stabilization Board, and in recent years, a levy has been deducted to cover the cost of subsidized exports of skim milk powder.

In effect therefore, all milk prices in Canada are administered at the farm level. In several provinces, the administration of prices extends through to the retail level; under the CDC, some processor margins are also controlled. The system of pricing under the CDC is as much political as it is economic, depending on the support price of butter and skim milk powder (determined by the Federal Cabinet), the amount of the subsidy (also dependent on Cabinet), and the size of the export levy (dependent upon the volume of skim for subsidized export and the export price).

Poultry and Eggs -- With the announcement in December 1978 of formation of the National Chicken Marketing Agency, all poultry products in Canada are under supply management schemes. The national egg agency, CEMA,

was formed in 1973, and the turkey agency was formed in 1975. These marketing boards generally operate in the same manner. The national agency establishes price targets and a mechanism to achieve that target, in relation to the agency's estimated production costs. The national agency also allocates total national quota among the provinces. A system of import quotas regulates the volume of imports. The provincial producer boards administer the quota program within each province, and are responsible for provincial prices being on target. Each level of board assesses a levy on producers, some of which is an allowable cost in the pricing formula. Costs are calculated monthly, and prices may be adjusted that frequently if conditions warrant. These boards control only the minimum price at which producers sell, and processors, dealers or retailers are permitted to sell the product according to whatever prices their competitive environment permits. There is some evidence to support the argument that the protection provided producers at the farm level also protects processors and retailers. Certainly, even the rumour of shortages can cause temporary increases in the margin charges by retailers as the 1978 Christmas turkey situation showed.

Fruits and Vegetables -- Domestically produced supplies of fruit and vegetables account for about 60 per cent of total supplies consumed in Canada. The other 40 per cent is imported, primarily during the winter months and primarily from the southern U.S. (California, Texas and Florida). The main reason for this is the winter climate in Canada which prohibits year-round production of field crops, and our inability to grow citrus crops, tropical fruits and some vegetables.

A number of marketing boards exist for fruits and vegetables but most of them are the negotiating type with very limited ability to control prices and no ability to control supply. Tariffs help establish some protection for domestic producers, and some latitude for board negotiation, but the extent of this protection is also limited.

Fruit and vegetable pricing, therefore, is a combination of international, domestic and local factors. For imported fruits and vegetables, fresh or processed, prices will be internationally determined. When local or domestic production is available, it may, depending on the area, determine prices.

The rapid increases in fresh fruit and vegetable prices during 1977 and 1978 illustrate the impact of these forces. During the winter months when we were dependent on the U.S. for lettuce, cabbage, tomatoes, etc., the prices shot up when U.S. crops were damaged. However, when local production or supplies from a broader U.S. base were available, price declined almost as dramatically.

Farm Inputs and Farm Prices

The preceding section provided an overview of how farm prices are determined. An earlier section described the sectors in which farmers buy the inputs to which they add their labour and management skills to convert these inputs to farm products. The purpose of this short section is to

compare price changes in farm inputs to changes in farm product prices, and to compare price changes among categories of inputs. The farm sector differs from most industrial sectors in the way in which input prices become reflected in product prices. Traditionally, farmers have been considered to be "price takers" with no power to relate their selling prices to the cost of inputs. This remains true for the majority of farm production, but it is not true for the supply-managed commodities. Indeed with the inception of supply management, pricing in the farm sector lies at the polar extremes of industrial pricing.

For the unregulated farm products, farmers are unable to pass cost increases along in their product prices. Their only response to changes in input prices is to vary production, but even this adjustment may be severely limited. In dealing with biological production, the length of the production period imposes a very real constraint on responding to changed conditions, and the nature of other financial commitments may also restrict adjustment. For example, increased fuel or energy costs will usually be unavoidable for a given line of equipment. Certainly most farmers cannot pass these costs along in the price of commodities like grains and livestock. Similarly, higher feed costs have to be absorbed by a cattle or hog feeder if his animals are only half grown. Only a few input price changes can be responded to if they occur at a particular time in production. Fertilizer, seed and chemical price changes may be reacted upon; building and machinery repairs can be speeded up or postponed under some conditions; labour can be varied if prices warrant. Finally, cattle and hog feeders collectively will react to higher feed prices by reducing their bidding prices on feeder animals so that some adjustment is possible over a longer period of time.

Interestingly, the products (dairy and poultry) subject to administered pricing are the exact opposite in pricing. In effect, increases in input prices are passed on in the product price by formula and without any competitive pressures forcing modification of the production process in light of the higher input prices. Market adjustments to the changed product prices are accommodated by administered changes in production levels (quotas) or by administered allocation of the product among markets. The unregulated farm products represent production and pricing situations which businessmen in the industrial sectors try very hard to avoid; they are extremely competitive, and they are entirely disciplined by market forces. The administratively-priced farm products represent the "ideal" world of industrial pricing, the businessman's dream where pricing decisions are entirely free of any competitive pressures. In fact, industrial input-output pricing relationships fall somewhere between these polar extremes which now exist in Canadian agriculture.

Interpretation of the data in Table 4-1 and Chart 4-1 must recognize that divergence between input and output prices does not lead directly to conclusions about changes in farm income. In particular, the conventional wisdom that rising input prices and falling product prices lead automatically to falling farm income is not valid. Between buying inputs and selling a product, a very important event occurs -- production.

Table 4-1

Annual Rates of Change, Farm Input Price Indexes
1970-78

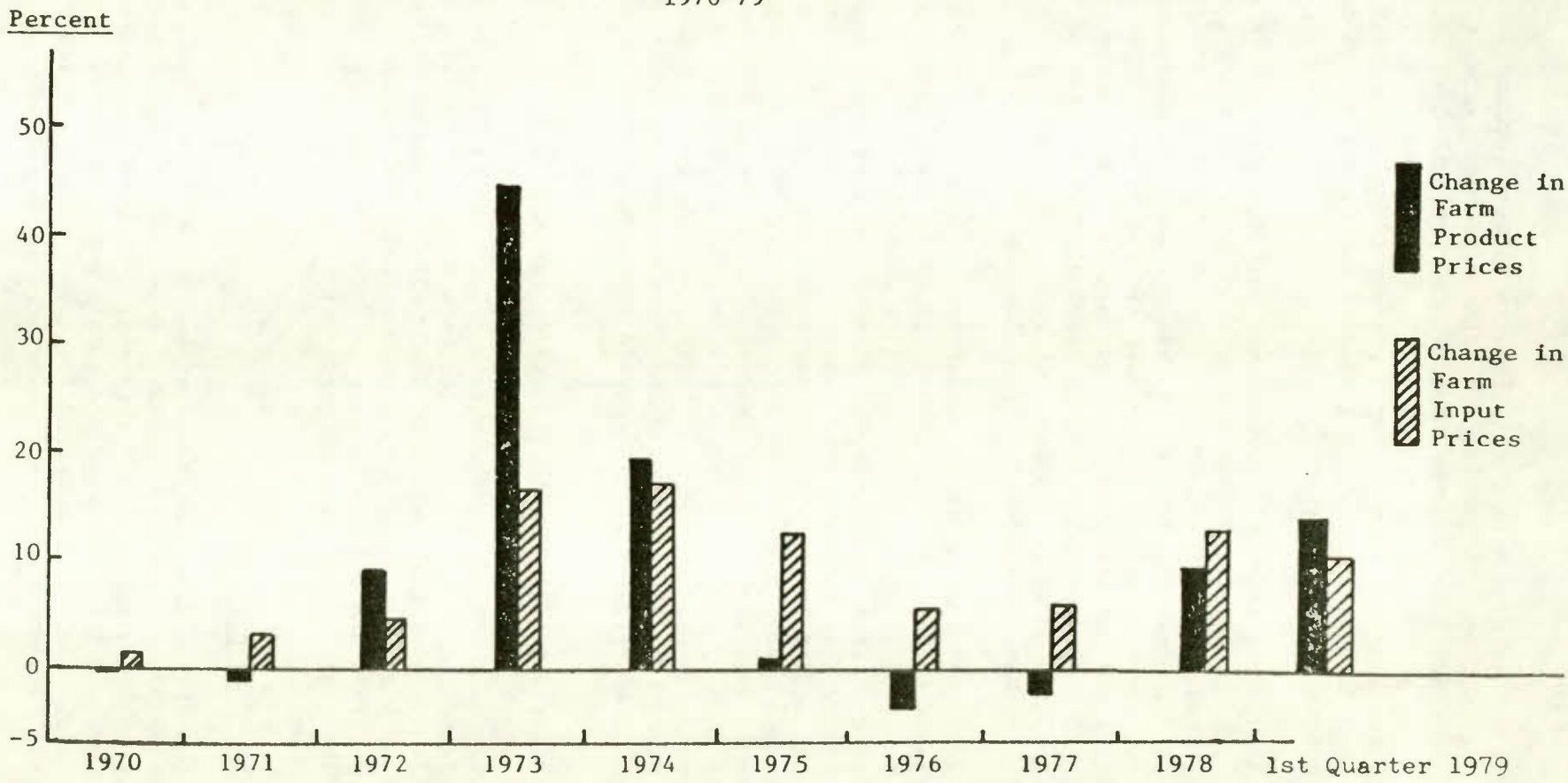
	1970	1971	1972	1973	1974	1975	1976	1977	1978
					(per cent)				
Farm building replacement	1.0	6.8	11.6	14.6	10.2	6.7	8.6	9.5	10.1
Farm building repairs	2.3	4.9	9.7	12.0	13.4	8.6	11.0	7.8	9.5
Farm machinery	2.7	2.3	3.1	4.1	12.0	15.6	5.7	6.7	7.2
Petroleum products	1.2	3.4	2.2	6.1	15.0	19.6	14.9	8.8	5.4
Hired farm labour	5.0	4.9	6.9	13.4	17.7	15.5	15.0	9.9	5.7
Fertilizer	-2.5	3.3	3.4	12.0	42.1	23.8	-2.7	0.25	6.6
Seed	-3.1	-0.6	-3.3	27.4	64.4	14.2	-7.4	3.4	3.9
Feed	0.1	2.0	0.5	53.0	28.4	1.4	-0.9	0.25	1.7
Feeder cattle	7.1	1.5	14.0	31.0	-10.3	-5.6	4.6	2.2	56.8
Small tools and supplies	2.5	3.2	7.7	6.7	12.0	13.3	5.7	5.0	4.7
Mortgages:			5.2	21.6	41.1	24.2	23.8	8.6	15.1
Mortgage rate			1.9	4.4	10.7	1.1	6.5	0.8	0.2
Non-mortgages:			-0.4	32.2	38.5	4.7	14.1	-7.4	17.3
Non-mortage interest rate			-5.7	12.2	20.4	-2.6	5.8	-11.3	7.0
Total Farm Inputs	1.6	3.2	4.5	16.3	17.1	12.2	5.9	6.0	11.6

Source: Statistics Canada, Farm Input Price Indexes, Catalogue No. 62-004.

Chart 4-1

Changes in Farm Product and Farm Input Prices

1970-79



Source: Statistics Canada, Index Numbers of Farm Prices of Agricultural Products, Catalogue No. 62-003; Farm Input Price Indexes, Catalogue No. 62-004.

There is not a simple, constant relationship between purchased inputs and output in agriculture. Obviously, it is the difference between total production cost and total revenue from sale of production which determines profitability. Therefore, if productivity of resources is gradually increasing, gradual increases in input prices or gradual decreases in product prices can still produce a gradually increasing net income. The reverse statement is also painfully true.

Also, in a particular production period, an above average crop yield or a very favourable conversion rate in livestock feeding can transform rising input prices, or falling product prices, into increased profit or net income. The reverse of this statement is also true. Consequently, there is no direct and easy linkage between input prices, product prices and net returns. That is why some people become somewhat uneasy with cost-of-production formula pricing, particularly if the formulae are based on price indexes. It is also why the next section of this report reviews the evidence on farm incomes.

Table 4-1 identifies 14 categories of farm input prices. The large increases in input prices occurred in 1973, 1974, 1975, and appear to have been substantial again in 1978. These data illustrate an interesting characteristic of farm input prices. Some of the very large increases originate from within the farm sector itself. Seed, feed and feeder cattle have had some of the largest price changes and for those areas of production where they occur, they are important inputs. Unlike changes in prices in non-farm inputs, these changes represent transfers within the farm sector, and in many instances, transfers between enterprises on the same farms. Another important source of input price change has been interest charges. Among the industrial products there is some evidence of price variation (fertilizer) but general upward pressure on input prices is most evident.

Chart 4-1 indicates very clearly that both farm input and product prices vary, but reinforce the fact that farm product prices are unstable. The data suggest that, if aggregate farm prices are cyclical as some analysts claim, the peak of product prices was reached in 1975, and that 1978 may also be a rising portion of the cycle. Developments in cattle throughout 1978 and early 1979 would support this observation, and increases in grain and oilseeds prices in early 1979 are also consistent with it. The close association of input prices with the farm cycle is also evident.

The Question of Farm Incomes

One of the most controversial variables in the farm and food price or policy debate is farm incomes. From basic economic textbooks, through professional agricultural literature, to farm organization position-papers, all forms of the media, and onto the floors of every government in Canada, it is accepted that farm incomes are lower and more variable that incomes of the non-farming segment of the population.

> Farmers and fishermen have suffered from the severe effects of income instability or chonically depressed incomes.[45]

The growth in the amount of debt held by farmers is also used as evidence of their economic plight. A very large portion of farm policy, and large amounts of public funds, are said to be required to raise and stabilize farmers incomes. In short, the conventional wisdom, reinforced by politicians, governments and farm groups, is that farmers are poorly paid for their efforts, are poorer than the rest of society, and are about to exodus farms because of inadequate returns.

These are extremely important propositions. The farming sector, although declining in importance in terms of farm and farmer numbers, still represents a significant share of the labour force and of households. It is even more important in its general economic impact, and is vitally important to economic activity in many regions of the country. And, although farmers are not a homogeneous voting block, they wield a very powerful voice in determining the direction of policy which relates to agricultural and food matters. Predictably, therefore, we are faced with another of the "numbers games" in the farm-to-food price arena. This section attempts to provide some of the data and concepts which assist in understanding the farm income issues.

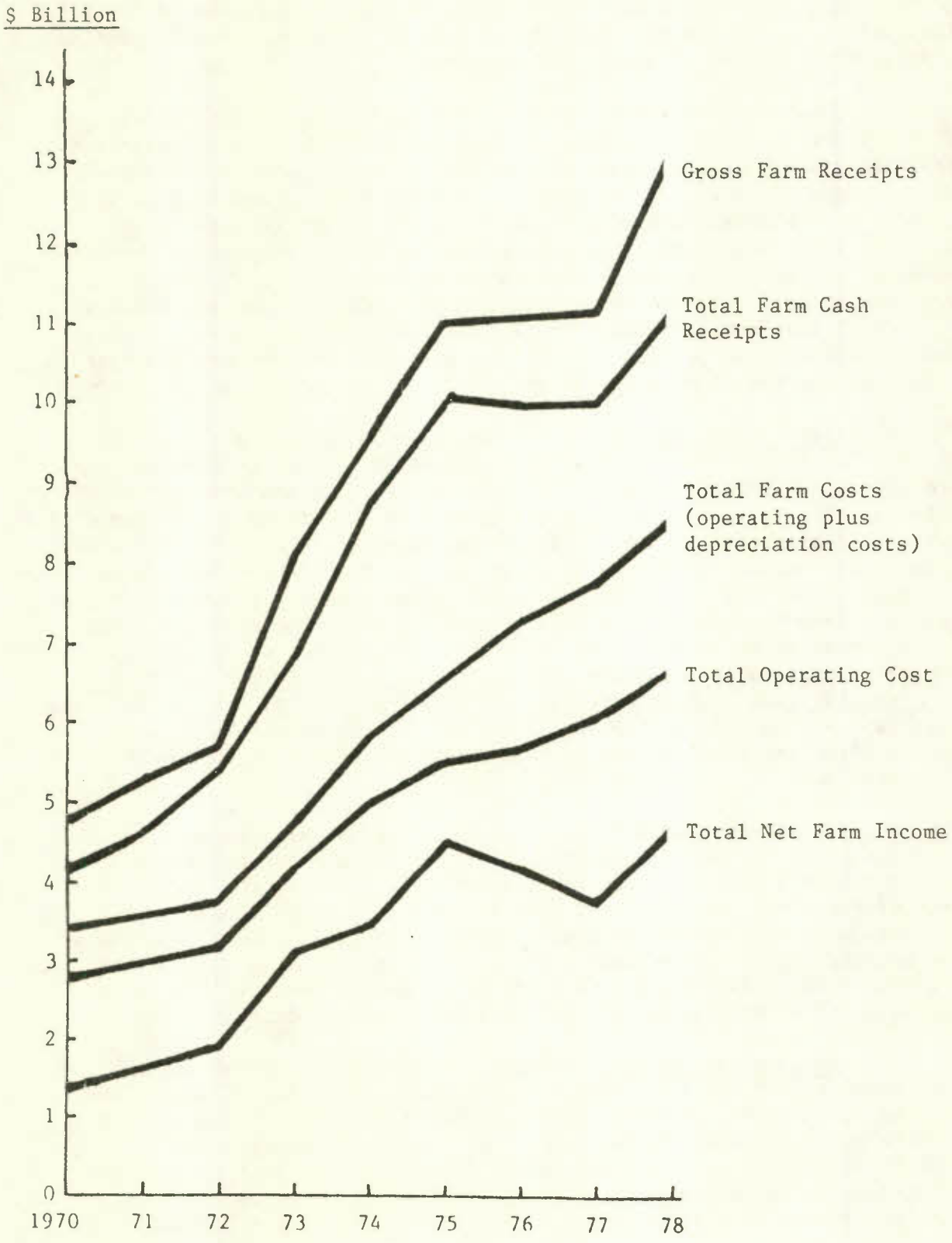
Farm Income Defined -- The most common indicator of farm income is the "Net Farm Income" statistics produced by Statistics Canada. They are determined by estimating total cash receipts, income-in-kind and the value of changes in inventory, and subtracting from these the estimate of total operating expenses and depreciation charges. "Net Farm Income" is therefore a measure of return to owner capital plus return for owner-supplied labour and management resources. For purposes of these calculations, a farm is defined as a unit consisting of one or more acres with gross annual sales in excess of $1200.[46] This definition of "net farm income" therefore is one which relates to the farm unit and the resources encompassing that unit rather than income of the farm operator. Although this is a workable definition of "farm income", it creates some confusion when welfare implications are attributed to the farmer on the basis of his "farm income".

An alternative definition of farm income which is more relevant to determining the welfare of farmers is one which might be called "net farmer income". This concept would accept the farm operator as the basic unit (rather than the farm) and consider all sources of income received by the farm operator family, including share of net farm income retained by the operator, paid family farm labour, and off-farm income. These data are not officially published but they can be extracted from tax file data or approximated by modifying official "net farm income" data.

Data on Farm Income -- Chart 4-3 shows the path of Canadian "net farm income" and its components beginning in 1970. It should be recognized that 1970 and 1971 were relatively bad years for major farm product prices, producing relatively low incomes in those years. Indeed the pattern of price and income changes in Canadian agriculture in the seventies provides as much evidence as should be required to convince anyone that farm prices and incomes are highly variable.

Chart 4-2

Farm Receipts, Costs and Net Income - Canada
1970-78



Source: Agriculture Division, Statistics Canada.

Total cash receipts rose from over $4 billion in 1970 and 1971 to approximately $10 billion in 1975, 1976 and 1977; they appear to have risen again in 1978 to about $12 billion. But total costs also rose in that period, from about $3.4 billion in 1970 to around $8.6 billion in 1978. The result is that Net Farm Income rose from about $1.4 billion in 1970 to a temporary peak of $4.5 billion in 1975, declining in 1976 and again in 1977, but appears to have risen to a new peak of $4.7 billion in 1978. According to Statistics Canada projections for total cash receipts and expenses for 1979, if there is not an unusually large inventory adjustment in 1979, Net Farm Income will be very close to its 1978 level in this calendar year.[47]

These data have been converted into estimates of "average net farm income per farm" in Chart 4-3 according to the estimates of the number of census farms. This calculation is subject to an additional source of error since farm numbers can only be estimated in non-census years. Using these data, average net farm income rose from $3,314 in 1970 to $12,415 in 1975, dropped slightly in 1976 and 1977, and rose to about $13,800 in 1978.

One among many of the problems of analyzing farm income this way is that the regional and product characteristics of farm income are hidden. If the data were disaggregated into their product and regional dimensions, two very important findings would arise:

(1) During the period 1970-78 the variations in farm income have originated primarily with grains, and secondarily in oilseeds. All other product groups have shown a fairly consistent and significant upward movement in returns over the period.

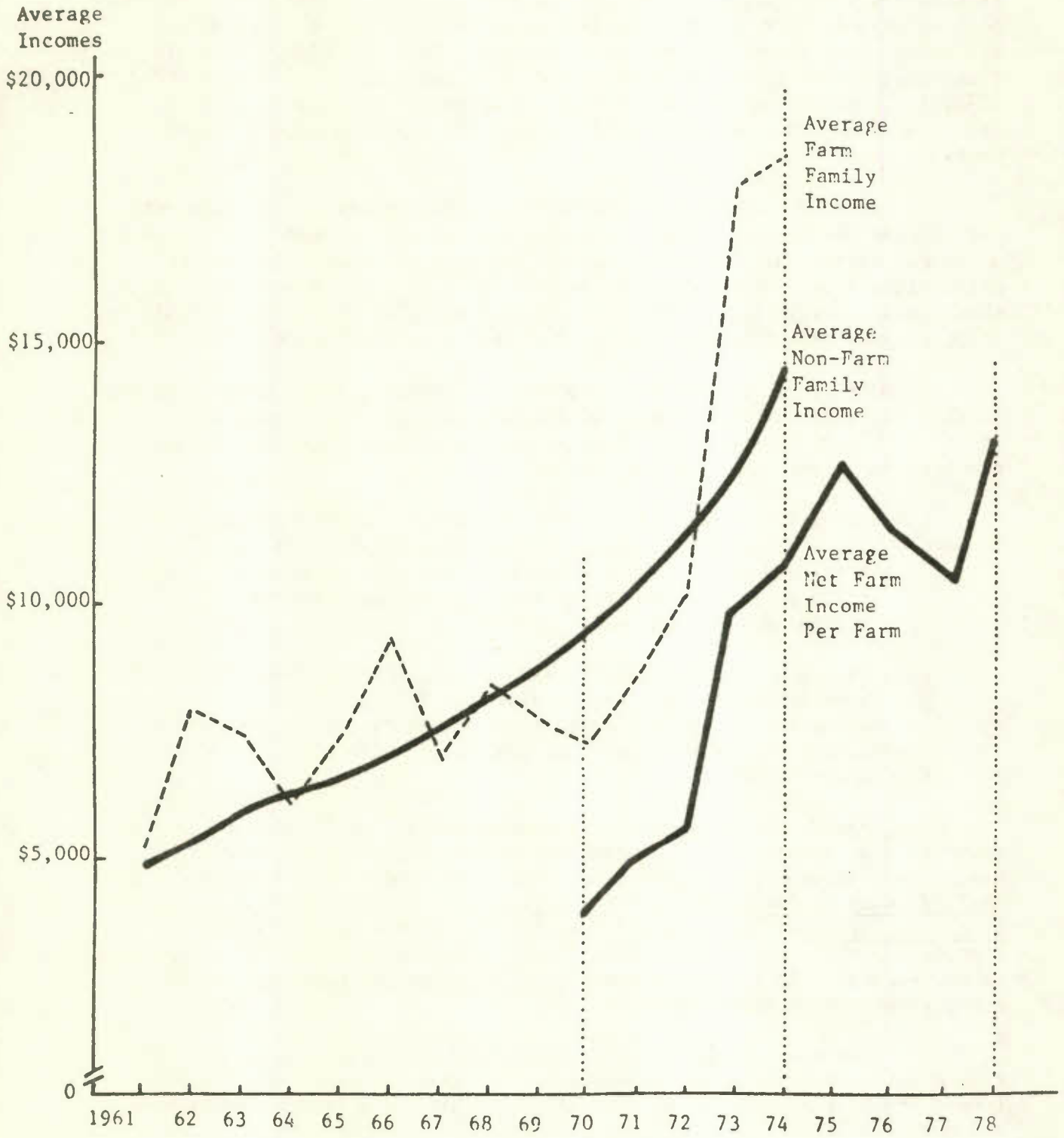
(2) All regions of the country except the Prairies have shown growth in farm income since 1970. The Prairie region has shown the greatest variation in farm income because of its dependence on grains and oilseeds (Chart 4-4).

Indeed, the disaggregation should proceed even further into, for example, the pattern of cattle receipts versus hog receipts or receipts versus cost movements. What is important therefore is to recognize that the diversity of Canadian agriculture cannot be summarized in a single statistic like "net farm income" irrespective of the quality of that statistic within its official definition. Nor can much meaning be attached to the statistic in a welfare sense when it is so far removed from an acceptable welfare measure.

A measure of the second concept of farm income, i.e., average income per farm family, was provided by the Food Prices Review Board[48] (Chart 4-3). The approach of that study was to estimate the combined farm and non-farm income for full-time farmers. These estimates are shown in the chart, and when compared with our estimates of "average net farm income per farm" for the five overlapping years (1970-74) show the significance of treating only "full-time" farmers and including off-farm income.[49]

Chart 4-3

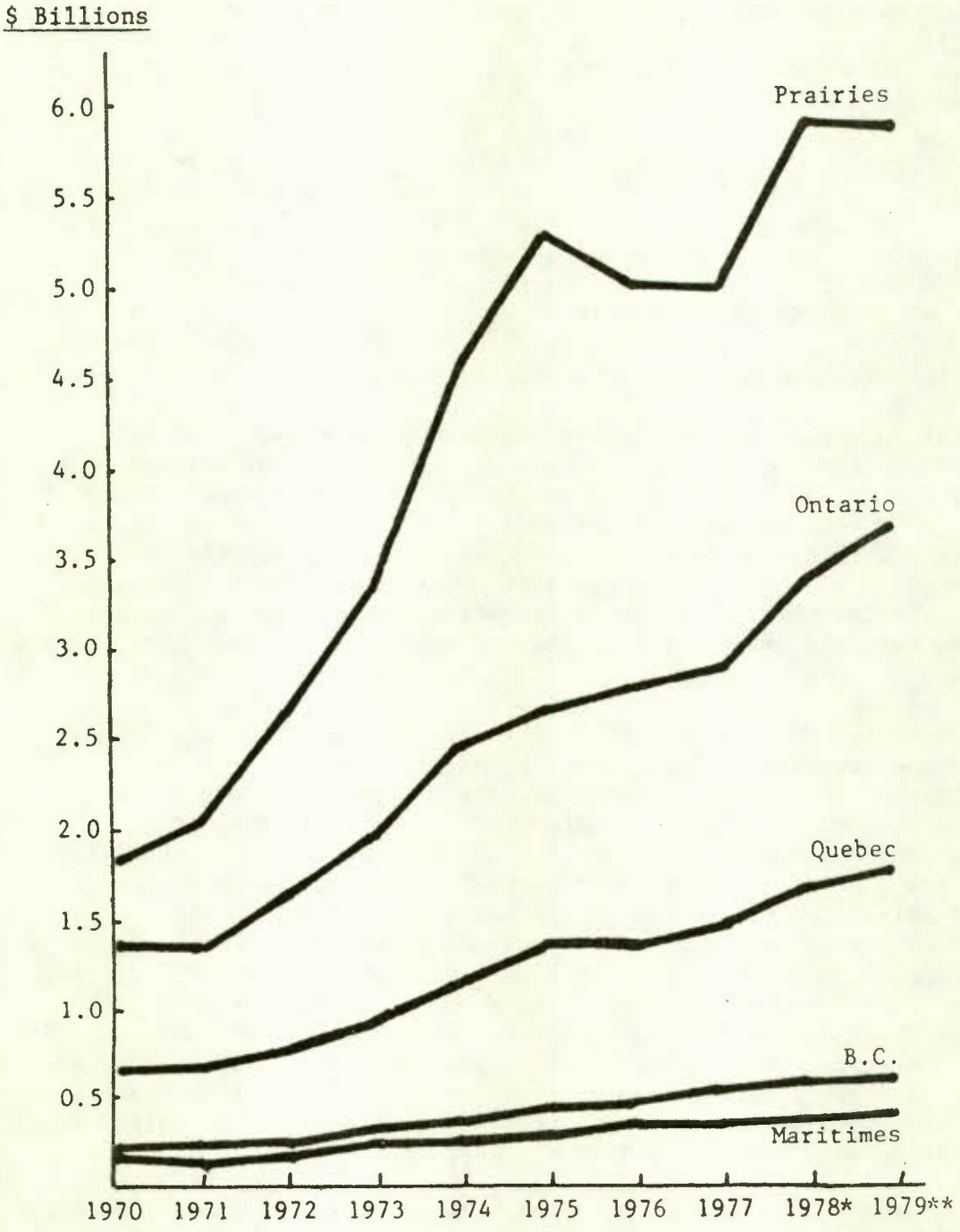
Farm Income Comparisons
1961-78



Source: Wirick, Reference Paper No. 9, Food Prices Review Board, 1976, and calculated.

Chart 4-4

Total Farm Cash Receipts by Region
1970-79



* 1978 data are estimated.
** 1979 data are forecast.

Source: Agriculture Division, Statistics Canada.

The purpose of Wirick's work, however, was to compare farm and non-farm incomes. The chart shows his conclusions that " ... there has been no persistent difference between the incomes of farm and non-farm families over the total time period (1961 through 1974)" and "average" [farm] income is obviously less stable from year to year than average non-farm income." A recent paper by Brinkman[50] provides the same general conclusion. Consequently, one important aspect of the conventional wisdom on farm incomes, i.e., that they are low, does not appear to stand up to statistical test.

Other Aspects of the Farm Income Question — The belief that farm incomes are lower than incomes of the rest of society has led to continuous efforts to raise farm incomes. The evidence provided above suggests that the objective of raising farm income may be based on incorrect information. But aside from that consideration, analyzed as it was above, there are a host of other problems that arise in making comparisons of farm and non-farm incomes as a basis for public policy. Basically, these considerations appear to have to have been side-stepped in the farm income numbers game.

An important problem appears to be the distribution of farm income in comparison to non-farm income. Presumably if the welfare of a particular group is at the heart of public policy, then a more uniform distribution of final income is preferred to one that is less uniform. There is some evidence to show that there is a higher proportion of farmers at the lower end of the income scale than the average of the Canadian population.[51] The next section will show that some efforts at raising farm income have the effect of exacerbating the distributional problem in farm income.

Another fundamental consideration is whether current or annual income is an appropriate policy variable for an industry which has a high degree of private ownership of resources which have traditionally experienced high rates of capital gain over time. Land, buildings, livestock, and, in today's regulated agriculture, production rights in the form of quotas, undergo increases in capital value. There is evidence to show that capital gains in Canadian agriculture represent a significant proportion of accumulated farm wealth and may at times be equivalent to measured farm income.[52] Capital gains may arise at the cost of current purchasing power; they may be related to a number of fortuitous circumstances, or they may result from profitable times in the industry generally. However, to the owner of the resource which is increasing in value, they represent both borrowing power and long-term income. They therefore provide a different mold within which to analyze the wealth of farmers than do short-term, traditional measures.

A related consideration, often flagged as one of the signs of the economic difficulties within the farming sector, is the growth in farm debt. As Table 4-2 shows, farm debt has risen dramatically in absolute terms: in 1965 total farm debt was about $3 billion; in 1977 it was estimated to be $10.4 billion. However, the significant feature of these data is that the growth in debt as a proportion of total farm investment has risen very little -- from approximately 16.5 per cent in the late

sixties to approximately 17.5 in the mid-seventies. These numbers might be considered almost remarkable for a number of reasons.

Table 4-2

Farm Debt and Debt-Equity Ratio
1965-77

Year	Farm Debt ($000,000)	Farm Debt in Relation to Farm Investment (%)
1965	3,004.4	15.7
1966	3,444.2	16.3
1967	3,950.7	16.9
1968	4,104.8	16.3
1969	4,424.8	16.9
1970	4,480.7	16.9
1971	4,714.3	17.8
1972	5,085.2	18.2
1973	5,871.4	17.9
1974	6,904.7	17.2
1975	8,170.2	17.3
1976	9,536.4	17.6
1977	10,400.5	17.7

Source: Agriculture Canada, Market Commentary, Farm Inputs, December 1978, Table 2, p. 85.

First, size of the numbers (under 20 per cent) indicates that well over 80 per cent of investment on farms is operator owned. Given modern credit standards, this would appear to be a "safe" debt position from the standpoint of both borrower and lender. It is unclear whether this "safe" position results from conservatism on the part of borrowers and lenders because of the inherent variability in agriculture, or if it represents general undercapitalization of the industry. Either way, the average debt load does not appear to be the burden that is often implied when only the absolute size of debt is considered.

Second, these data reinforce the point that was made above about the difficulty of attaching great significance to the health (or wealth) of the farming sector from conventional farm income measures. The rate of capital accumulation experienced in Canadian agriculture since 1965 could hardly have occurred in a poverty ridden industry. Moreover, over 80 per cent of that accumulated wealth is owned by Canadian farmers. A comparison with other sectors of the Canadian economy has not been made, but these data cast further doubt on the validity of the conventional wisdom on the level and variability of Canadian farm incomes.

Another consideration that could be made in assessing the validity of farm and non-farm income comparisons is the socio-economic structure of the two populations. If any meaningful comparison is to be made, factors which affect earning power should be held constant. Conversely, in a competitive, private enterprise economy one does not expect differential skills or resource ownership to receive standardized rewards. Factoring out these sources of income differences is extremely difficult. For example, the amount of capital and management skills required, risk, and hours of work are likely greater in farming than non-farming activities, while job benefits would be less. On the other hand, tax benefits and capital acquisition should favour farmers. A comparison of age, education, work skills and job conditions should also be made for a valid comparison. No research has been done in Canada on these factors, and therefore the net effect of them cannot be judged. Until this is done, little can be said about the appropriateness of equality of farm and non-farm incomes as an economic objective of farm policy.

In conclusion, it is valid to state that farm incomes are another significant part of the farm-to-food prices numbers game. There is no doubt that farm incomes tend to be variable, but when the data are carefully analyzed, much of the variation is grain-based. It is not categoric that farm incomes are low in relation to the rest of society. Consequently, the conventional wisdom on the lowness of farm incomes needs to be challenged. The distribution of farm incomes appears to be more unequal than the non-farm part of the economy. A policy framework geared primarily to beliefs about low and variable farm incomes is likely to produce effects which are unsuited to many of the real problems of the farm sector. The brief discussion of agricultural policy which follows is directed to that topic.

Agricultural Stabilization and Food Prices

The seventies in Canada have been characterized by major efforts by the federal government and several provincial governments to achieve greater "stability" in farm and food prices. At the federal level, this has included:

- passage of the National Farm Product Marketing Agencies Act (NFPMA) in 1972 and subsequent national marketing agencies;
- repeated proposals for a grain stabilization plan, culminating in the Western Grain Stabilization Act (WGSA) of 1976;
- the two-price wheat program initiated in 1972, revised in 1973 and revised again in 1978;
- revisions to the Agricultural Stabilization Act (ASA) in 1975; and
- the so-called long-term dairy policy of 1975.

Several provinces have also introduced legislation and programs to stabilize agriculture. At the time of writing, discussions between the federal and provincial ministers have reached an advanced stage of revising the (federal) Agricultural Stabilization Act and "harmonizing" of federal and provincial programs.

As a consequence of these legislative mechanisms, a variety of "stabilization" programs are in place. National supply management schemes exist for dairy products, chickens and turkeys, and eggs. Stabilization payments have been made under the ASA for fed cattle, cow-calf operations, winter wheat, corn, and a number of other commodities. A payment was made in 1978 under the WGS Act.

These "stabilization" programs represent a mixed bag in terms of coverage, mechanisms, and results. Supply management in poultry products represents a set of very rigid controls on production, pricing and imports. A two-tier quota system limits provinces to a historical relationship with other provinces; individual producers are limited by quotas which they hold or have acquired at any point in time. Border controls regulate and limit the amount of product which may be imported into Canada. Pricing is done to cover estimated "production costs". Consumer prices are on average higher in Canada than they would be in the absence of the supply management programs, quota values are high in some provinces, and reports surface periodically of reasonably efficient or large producers enjoying very large incomes from their poultry operations. Despite all these factors, there is serious question as to how much stability or market efficiency is accomplished by supply management in poultry. Chapter II indicated that our performance relative to the more open U.S. food market in these products has definitely deteriorated. Another study conducted by Martin and Warley concluded:[53]

> For even the most ardent advocates of marketing boards have found it difficult to refute the charge that the supply management boards have been permitted to use their powers in ways which exacerbate inflation.
>
> The trade off between stabilization benefits that seem "spotty" and uncertain at best, and the demonstrable worsening of competitive efficiency and impairment of equity that are attributable to the supply management boards does not strike one as being immediately favorable to Canadian society at large, or ultimately, to Canadian farmers themselves.

Conditions in the Canadian dairy industry (both fluid and industrial milk) are similar. Moreover, in the industrial milk sector, large support payments have been made to dairy farmers by the federal government. One estimate placed these payments at $9,500 per dairy farmer in the 1977-78 dairy year.[54] Other characteristics of dairy policy in Canada have been discussed by Mr. Robert Douglas of CSIP.[55]

The other forms of "stabilization" programs are substantially different from supply management. Under the WGS program,[56] producers contribute approximately one-third, and the federal government approximately two-thirds, to a stabilization fund in relation to volume of sales from the farm, up to a limit of $25,000. Payments by the program are statutorily defined, i.e., they are not discretionary on the part of the government. What the program "stabilizes" is the difference between gross returns and cash costs on the six crops when these net returns fall below a five-year average. Grain prices and producer returns are not limited on the top-side, consequently the program is best described as removing some of the bottom-side risk on net returns.[57]

Related to the WGS Act is another piece of legislation, the Two-Price Wheat Act, which provides a floor price for wheat used for domestic bread consumption. When the Act was introduced in 1973, it was to have stabilized domestic bread prices. This did not occur, however, because (1) the range on wheat prices permitted flour prices to rise considerably when wheat prices rose in 1973, but far more importantly (2) the growth in non-flour costs far exceeded any stabilizing effect that may have occurred from the limits imposed on wheat prices. The federal government did, however, make payments of about $375 million to "stabilize" wheat prices during the period from August 1973 to November 1978. The growth of the CPI for Cereal and Bakery Products in Chapter II illustrated how wheatbased products in Canada continued to rise despite the subsidy and the two-price wheat system.

Under the ASA, stabilization support is provided on nine named commodities,[58] and may be provided on other commodities if designated by the federal government. Payments are at least 90 per cent of a 5-year average of prices, adjusted for cash operating costs. Consequently, under the ASA, there is considerable government discretion on payments. Presumably, if payments are to have a stabilizing effect on production and prices, the payment, or knowledge and assurance of a payment, should influence the producer's decision at the time he is making the committment to produce. It is difficult to argue that this is the case since all of the stabilization payments are announced and calculated well after the product is sold. For example, during the crisis in the cow-calf industry in 1974-76, it was unclear whether cow-calf operations even qualified under the legislation and, despite repeated public statements of an impending payment by the Federal Minister of Agriculture, the government did not clarify its position until the payment for 1977 was announced after the crisis had passed. Similarly, a payment on fed cattle was made for 1976 but it was not announced until late 1976, well after the low prices had passed, and some producers did not receive their payments until up to 18 months after sale of livestock. How this kind of "stabilization" process affects farmer decision-making is not clear. To argue that payments made this way stabilize farm production requires rather special assumptions about the farm decision-making process. The argument that the programs have stabilized farm or food prices in Canada is not supported by the evidence presented at various stages of this paper. As vehicles for transferring public funds to be farm sector, they may be judged more successful.

In conclusion, then, substantial arguments have been and are still being made about the stabilizing impact on farm production and food prices of the variety of Canadian "stabilization programs". The evidence does not support these arguments. The supply management programs appear to have removed some of the short-term variation from farm prices, but they have aggravated longer term price increase, and have produced poorer price performance than the same products in the U.S. Price and volume variations remain in products under the ASA and WGSA. As a consequence, what has occurred is a net transfer of public funds toward the farm sector, achieved under the aegis of "stability" objectives.

There are fundamental reasons why this would be so. In a relatively open economy like that of Canada, particularly in many of Canada's agricultural commodities, farm gate stability will be dissipated in several ways. First, trade with other countries will tap off relatively large Canadian production when off-shore prices are high, and force Canadian prices down when off-shore prices are low. There is no indication, for example, that the beef stabilization program has added any stability to Canadian beef, either in numbers or price, because with a low Canadian dollar and high U.S. beef prices the effects of any stability in Canada are exported to U.S. consumers of beef.

Second, entrepreneurs after the farm gate are free to price as conditions permit. They also contribute to food price instability despite what happens at the farm gate unless controls are placed on their pricing. An example of this reality is the temporary large increases in retail turkey prices during November and December 1978. Retailers and processors will adjust their margins in relation to their assessment of demand and supply at the moment. To argue that they will not, or should not, is to totally neglect the structure and operation of that segment of the food market.

A study published in 1976 by a respected researcher concurred with these conclusions in assessing the ASA. Martin stated:[59]

> Two major factors are important in assessing the ability of the amended Act (ASA) to attain this objective (to stabilize consumer prices). First, given the present ineffective nature of the programs, this cannot and will not occur because they will not alter production decisions. Second, and more fundamentally, it is extremely doubtful that programs would result in substantial consumer benefits.... because of the international orientation of the livestock sector.

Martin's analysis was undertaken in relation only to livestock and the ASA; the arguments apply to any stabilization program applied where borders are relatively open and where middlemen operate according to market forces.

Consequently, the contributions of stabilization of the agricultural sector <u>to food prices</u> may be illusory or non-existent. To achieve stability, administered pricing in some advanced form almost

necessarily has to be applied throughout the system. This does not in any way argue against the need for or desirability of greater stability at the farm gate. It does, however, reduce the validity of many of the arguments which are made to justify that stability, and may dictate the vehicles by which farm price stability is sought.

V FARM-TO-RETAIL MARKETING MARGINS

The area of marketing margins is another very controversial component of farm-to-food price discussions. Rapid changes in farm or food prices are often associated with accusations of excess profits by middlemen. There appears to be a belief, perhaps implicit, that marketing margins represent middlemen profits when, in fact, profits are usually only a small part of the marketing margin and a much smaller part of food prices. Unfortunately, there is not a great deal of hard evidence available in Canada which can be brought to bear on these issues.

The objectives of this section is two fold. First, despite the lack of good quantitative evidence on margins, it is considered important to the overall purposes of this report to outline what margins are and how they relate to food prices. Therefore, the discussion goes to some lengths to define margins, and relate profits, and profit measures, to the structure of food prices. Next, the attempt is made to provide some quantitative measures of price spreads and relate these to food price performance. Because of insufficient data, this section is lacking in coverage. This is another area where major continuing price pressures and public debates have not generated an analytic framework or information base. Even the multitude of food inquiries over the years have bypassed many of the important areas of study.

Some Important Definitions

Food production and pricing originate in the farm supply sector and in the land market, but the farmer combines a number of inputs to produce a raw food product -- a farm product. That product has a price when it is sold off the farm -- the farm price. The raw product then moves through a series of marketing processes (most of which are really production processes) on its way to the retail outlet where it will be purchased by a consumer at a price -- the retail price. This marketing process includes processing, transporting, storing, financing and insuring, distributing and selling. The difference between the amount paid by the consumer and the amount received by the farmer is the marketing margin or the farm-to-retail price spread. When the farm price is expressed in relation to the retail price, the statistic is called the farm share; when the marketing margin is expressed in relation to the retail price, it is called the marketing share. Obviously, if the statistics are expressed as percentages, the sum of the farm and marketing shares is 100 per cent. It should also be obvious that it makes sense to speak of the product and prices only in some standardized terms because the form of the product at different levels will usually be different. For example, farmers sell cattle but consumers buy meat; the standard unit usually is meat equivalent. Similarly, farmers sell pounds of potatoes, but consumers buy chips and flakes; the standard unit may be pounds of washed potatoes. Standardizing the units is one of the most difficult parts of calculating marketing margins and is one of the major sources of confusion on margins. However, farm and retail prices cannot be compared until a stardard unit is established.

These definitions can be applied to an individual food item, or they can be applied aggregatively to all food. For example, as of January 1979 the farm price of Grade A Large eggs for sale in Winnipeg was about 70 cents per dozen; the retail price probably averaged about 85 cents. The farm share, therefore, was about 82 per cent and the marketing margin was 15 cents or about 18 per cent. On the other hand, it is often stated that about 40 per cent of Canadian consumer expenditure on food goes to the farmer -- the farm share -- and about 60 per cent is the marketing share. Consequently, of the approximately $22 billion spent on food in 1979, the farm share would be about $8.8 billion, and the marketing margin about $13.2 billion.

When analyzing food prices or expenditures according to the farm share/marketing margin approach, it is essential to remember the components of each concept. The farm share incorporates the cost of all inputs used, all changes resulting from the farm production process, return to farm labour and management, and any profit or loss on the operation. Similarly, the marketing margin incorporates a series of transactions and production processes. In most instances, there will be more steps involved in marketing the raw product than there were in the farmer's production of the original product. The marketing margin, therefore, incorporates purchase of all non-farm inputs, any costs of transforming the product, transporting it, storing it and finally selling it, and the provision for profit or loss at any step in the process. Stated in this manner, it should be evident at least conceptually, that profit (or loss) of middlemen is only one aspect of marketing margins.

In the end, a change in a food price is the consequence of a change in the farm price or in the marketing margin. The cause of a change in the farm price may be difficult to establish but the actual farm price change is usually readily identifiable. Changes in the marketing margin are often extremely difficult to identify and source because of the structure of the marketing margin. It is often difficult to even correlate changes in farm and retail prices. Taking the additional step of identifying which part of the marketing margin changed, if it changed at all, can involve data which are often not generally available. Consequently, changes in food prices can originate from many sources. If farm prices change, the impact of that change depends on how important the raw product is in the final product, and upon how the food system reacts in establishing its prices. Changes in marketing margins may also alter food prices. Whether the food system receives more or less profit under a higher (or lower) margin situation is an empirical question. It will be shown later, however, that, in general, very large changes in profit would be required to bring about very small changes in price.

Characteristics of Marketing Margins

The farm share of the consumer dollar has been declining over the years. Many people take this as another sign of problems in the agricultural sector, but that conclusion need not be true. The best example of that fact is to observe that in primitive societies where everyone produces his own food, the marketing margin is zero. Similarly,

when farmers sell directly to consumers the marketing margin is very low or zero, but the opportunities to minimize margins this way are extremely limited.

There are several basic characteristics of marketing margins which may assist in understanding the declining farm share. Table 5-1 is provided to illustrate the following characteristics.

1. The marketing margin varies significantly among products. This variation happens because of the number of marketing services that are performed in getting the product from the producer to the consumer. Eggs have a relatively low marketing margin because the basic egg is left unchanged in the process, and only packaging, handling and selling are provided. The marketing margin for eggs purchased directly from the farmer would also be zero. Conversely, wheat is a very small (but essential) part of a loaf of bread; the marketing margin on wheat used in bread is very large.

2. The marketing margin has tended to increase over the years. The reason for the increase is that consumers demand, and receive, more services with their food over time; consequently the farm share declines. This would also occur during a period when industrial prices and wages rise more rapidly than farm prices.

3. If farm prices rise rapidly, the farm share may rise. Whether this occurs depends upon middlemen pricing policies and competition in the system. If middlemen are able to pass along all cost increases plus a percentage mark-up, the marketing margin may rise as quickly as farm prices. However, if competition forces a more constant absolute margin, the farm share will likely rise.

4. Reducing or eliminating profits will generally have only a small effect on the marketing margin. This is so because profits are usually only a small proportion of the overall margin. For example, a major Canadian meat packer consistently reports profit on sales of about 1 per cent. If that packer eliminated profits completely by lowering prices, and all packers followed suit, wholesale meat prices would drop by only about 1 per cent. Similarly, food retailers report profits of about 1.5 per cent on sales, implying zero profits would lower prices only by that amount. A recent federal government study estimated that post-farm gate profits represent about 2.6 per cent of consumer food prices.[60] If this figure is accurate, it implies that a 100 per cent increase in profits at all levels of food marketing would increase food prices by 2.6 per cent. A 20 per cent increase in beef or dairy prices in the CPI would accomplish the same result.

Table 5-1

Estimated Marketing Margins on Six Selected Food Commodities
1950, 1960, 1970 and 1973*

Commodity	1950	1960	1970	1973
		(per cent)		
Wheat into Bread	79.0	87.5	91.0	88.3
Beef	33.0	43.6	43.0	30.8
Pork	39.0	46.5	46.0	28.4
Fluid Milk	45.0	46.5	48.0	46.8
Butter	25.0	25.1	25.0	25.4
Grade A Large Eggs	22.0	38.2	37.0	23.5
Canned Tomatoes	79.0	79.7	79.0	81.5

*Calculated from data supplied by Agriculture Canada. The last year for which these data are available in 1973.

Measuring Business Profits

Since food prices began their dramatic increases in 1973, there have been a few studies of profits at different levels of the food chain. One of the problems inherent in profits analysis is establishing a standard, acceptable norm for measuring and reporting profits. The food Prices Review Board stated in 1974 that " ... there is no universally accepted benchmark ratio or indicator of profitability."[61] The measures which are available in Canada include:

1) net return on sales;
2) net return on investment or capital;
3) net return on equity; and
4) unit profitability.

Each of these measures has some validity for certain purposes, and each has found its way into the public domain. But each concept provides a different number and measures a different aspect of profitability. The availability of the different measures, therefore, creates considerable confusion. In order to distinguish among them, they must first be defined.

Net Return on Sales -- This measure expresses after-tax profits as a proportion of total sales revenue. This measure is sometimes called a "profit margin" which may be one of the sources of confusion between marketing margins and profit. The amount of a profit associated with a particular profit rate on sales depends on how frequently the product turns over during the period in which profitability is being measured. If turnover is rapid, profit for any given amount of capital in the business also accumulates rapidly. For example, within a retail food store milk and bread are recognized as high turnover items, while most gourmet items turn over slowly: the mark-up, and presumably the profit on sales, on bread and milk are small, but the mark-up on gourmet items would be large.

Profit on Investment or Capital -- Profit rate can be expressed as a proportion of total financial commitment of the enterprise, including shareholder equity, borrowed fixed capital, and borrowed operating capital. Expressed this way, the base against which profits are measured reflects the financial leverage firms enjoy by borrowing funds.

The Food Prices Review Board (FPRB) stated:[62]

> " ... the rate of return on invested capital gauges the performance of an enterprise when all invested resources available to management have been considered and when the possibility of differences, among firms or groups of firms, arising from varying capitalization and debt structures, have been taken into consideration."

This measure tends to be a useful criterion for judging the social or public performance of business because it represents all funds employed in the business.

Profit on Shareholder Equity -- Profit rates can also be expressed in relation to the value of resources held by owners or shareholders of business. The FPRB described this profit indicator as follows:[63]

> "When examined over a number of years, this ratio serves as a basic performance indicator of an enterprise since it gauges the actual after-tax income that the management of the company has been able to generate with a given amount of equity. Accordingly, it provides a yardstick which an investor can use to help choose among various investment alternatives."

An important generalization about these three profit measures can be made here. In a firm or industry where sales volume exceeds total investment and where any borrowed capital is used, the same absolute amount of profit will give three different profit rates: profit on sales will be the smallest number; profit on investment will be an intermediate number; profit on shareholder equity will be the largest number.

Profit per Unit of Output -- In the search to reflect productivity, as well as profitability, in a single statistic, the CSIP examined unit profitability. It compares "base profit gains with output gains in productivity, using seasonally-adjusted Real Domestic Profit data". Base profits are defined by Statistics Canada as "operating income before taxes and before deducting depreciation and certain other costs." This measure is argued to be a better indicator of profits from the standpoint of monitoring inflation.

> "Suppose that on a product that sells for $1.00, the manufacturer has 94 cents of actual costs. Therefore, his profit margin is 6% and his unit profit is 6 cents. Now suppose that because of uncontrollable events - say a crop failure - the cost of the product doubles to $1.88. To retain his profit margin of 6%, the manufacturers would have to raise his selling price to $2.00. This would double his unit profit from 6 cents to 12 cents - a 100% increase because his input cost went up.[64]

According to CSIP, this method of pricing is inflationary, and contributes to higher prices, because "A constant [percentage] profit margin by definition incorporates the inflationary effect of passing on higher costs, plus a mark-up on those costs." On this observation, there should be little doubt.

The Evidence on Food Company Profits

The previous section indicated that at least four measures of profitability are available. Each has its own purpose and will generally provide different views. There are three sources of evidence on profits discussed here, each a government agency which operated in the seventies. In addition, Statistics Canada routinely reports on the financial operations of food companies. An effort is also made in this paper to indicate the relationship between the three sources, to discuss their non-comparability.

The Food Prices Review Board -- In its second report on food company profits, the Board emphasized net return on equity.[65] A comparison was made between food manufacturers and processors and all manufacturing firms, and between food distributors and the total trade sector. Their data were obtained directly from food companies and from the Financial Research Institute, a non-profit financial analytic agency in Montreal.

The Board found that for the period 1964-74 profitability expressed in this manner for food manufacturers was slightly lower than for manufacturing in general (10.1 per cent return on equity versus 10.8 per cent). For food retailers over this period, return on equity was almost equal to that of the general retailing sector (10.6 per cent versus 10.7 per cent). The Board also concluded that during 1973 and 1974 profits or changes in profits were not a significant factor in causing the higher

prices in those years. According to their analysis, about two-thirds of the higher prices could be traced to higher raw product costs, and one-third to higher costs of other purchased inputs, in particular wages and salaries.

It is also significant that the Board concluded that the record of productivity in the food industry was poor. Its measure of productivity, constant dollar sales per employee, declined for the 1964-74 period in all sectors except dairy processing. Consequently, food company profits were not a contributor to rising fod prices but falling productivity may have been.

The Anti-Inflation Board -- The AIB, naturally, had a very specific reason for analyzing company profits -- to determine profitability in relation to the Wage and Price Control guidelines. Basically the guidelines were defined in terms of per cent return on gross revenue. In a 1978 report,[66] the AIB examined profit margins of food processors, wholesalers and distributors over the 1977 to mid-1978 period. Net profit on sales by food processors averaged 3.1 per cent, and were almost constant for the first half of 1977 and the first half of 1978. Between 1971 and 1977, AIB estimated that profits as a per cent of sales had dropped from 4.1 to 3.4 per cent. In relation to investment, they suggested that profits had remained reasonably stable throughout this period.

For food retailers, measured by per cent return of sales for 14 retailers, profits fell from 1.80 per cent in the first half of 1977 to 1.75 per cent in the first half of 1978. Retailer profits averaged 1.70 during 1977 compared to an average 1.76 per cent during the 1970-76 period. The AIB also pointed out that the (lower) 1977 returns on sales generated a higher return on equity before tax than the (higher) 1970-76 return on sales (20.9 per cent versus 20.7 per cent). This illustrates the distinctions in profit measures made earlier.

The conclusions of the AIB were that overall profit margins and net profits remained relatively stable throughout the 1970-78 period of escalating food prices and that increases in retailer or processor profits did not appear to have contributed to the rise in food prices in the first 6 months of 1978.[67] Their data support these conclusions, but predictably, this is not the complete story, nor should the statement absolve retailers and processors of all responsibility for rising food prices. If profits remain constant, but productivity falls, food prices will rise. Moreover, the profits identified above are in percentage terms, and as indicated earlier, constant percentage margins may add up to increased food prices. This latter point is the basis of the apparent contradiction between the AIB data and that produced by The Centre for The Study of Inflation and Productivity.

The Centre for The Study of Inflation and Productivity. In late 1978, CSIP produced analysis indicating that unit profits in the food and beverage industry had increased sharply from early 1977 to the third quarter of 1978. The study also stated:

> "Although complete information is not yet available, it appears that profit increases may have contributed somewhat to the rapid increase in food prices over the last year, however, they were by no means a major cause.[68]

What these data show is that for the firms in the sample (Statistics Canada data on food and beverage manufacturers which include wineries, distrilleries and soft drink manufacturers) profit per unit of output increased by a significant percentage during the period under review. This indicates that marketing margins on food products were increased by an amount sufficient to generate a marked increase over the unit profit achieved in the first quarter of 1977, or conversely, had unit profits not increased food prices would have been lower by the amount of the change in the unit profit margin. The importance of this increase in profit, naturally, depends upon the base figure against which the unit profit increase is measured. Apparently the net effect, in terms of prices, was small.

This unit profit concept is probably the most difficult of the profit options to understand. It does, however, provide additional information on profit behaviour within food firms. Moreover, CSIP was the first agency to recognize in an explicit way, and research, the very important relationships between productivity, profitability and food price changes. A great deal more analysis in this area is required, particularly on productivity. In fact, these three sets of studies indicate that the attempt to explain food price increase in terms solely of food company profits is not very rewarding, suggesting that analysis of elements of pricing behaviour, general competitive conditions and productivity may be more productive.

Price Spreads on Selected Commodities

Hard information on marketing margins or price spreads on a significant range of Canadian commodities is much less available than is information on profits. Agriculture Canada devotes some resources to this exercise, but there is little published data available beyond 1973. Some of this information was summarized in Table 5-1. This section will review recent data provided by Agriculture Canada, on three commodities -- beef, chickens and turkeys. In addition, reference is made to some useful data, prepared by the Competition Bureau, Department of Consumer and Corporate Affairs.[69] This latter report argues that price spreads are a more useful and informative approach to measurement of performance of food firms than are profits or prices. The purpose here is not to enter that controversy, but it is to provide what information is available on price spreads. It should be noted, however, that by reporting on spreads, or by partitioning final food prices into the farm share or marketing share, one cannot assess the "correctness" of a share or the price. These data are only descriptive and illustrative, and far from prescriptive.

Beef -- The marketing margin on beef is usually presented in the form of its farm-to-wholesale component and its wholesale-to-retail component. The unit in which prices are measured is the carcass weight, i.e., the form in which meat packers usually deal. The data that are presented here represent estimated marketing margins on top quality steers (Toronto is used for convenience).[70] Live steers of this quality will average about 58 per cent of carcass plus by-products at the packer level, and about 43 per cent saleable meat plus low valued cut-out at retail. Consequently, a 1,080 pound steer provides on average about 625 pounds of carcass (plus some by-products), and about 470 pounds of retail beef cuts.

The value of by-products, and who receives the money from them, is a contentious issue in beef pricing. Chart 5-1 indicates that these products do amount to substantial sums of money, upwards of 80 dollars per animal in the summer of 1978. These by-product values certainly show up in beef pricing. Packers, in determining their target bidding prices on live or carcass animals, determine the value of by-products and balance them against their average processing costs. In the trade this balancing is known as "kill costs" versus "kill credits". If by-products are high valued, the credits may exceed the costs and the carcass price the producer receives may even exceed the price at which the packer sells the same carcass to retail, i.e., the packer spread (as measured here) could be, and sometimes is, negative. Alternatively, if by-product values are low, the "kill credits" may be small and the (measured) processor margin increases. But theoretically, and in practice, the by-product values are considered in packer pricing decisions. As long as competition among packers is keen enough to force them to keep their real margins to a minimum, the by-product values are reflected in high producer prices and lower consumer prices. The second line in Chart 5-1, Price Spread Minus By-Product Value, illustrates how important by-product values are in relation to the size of the processor margin.

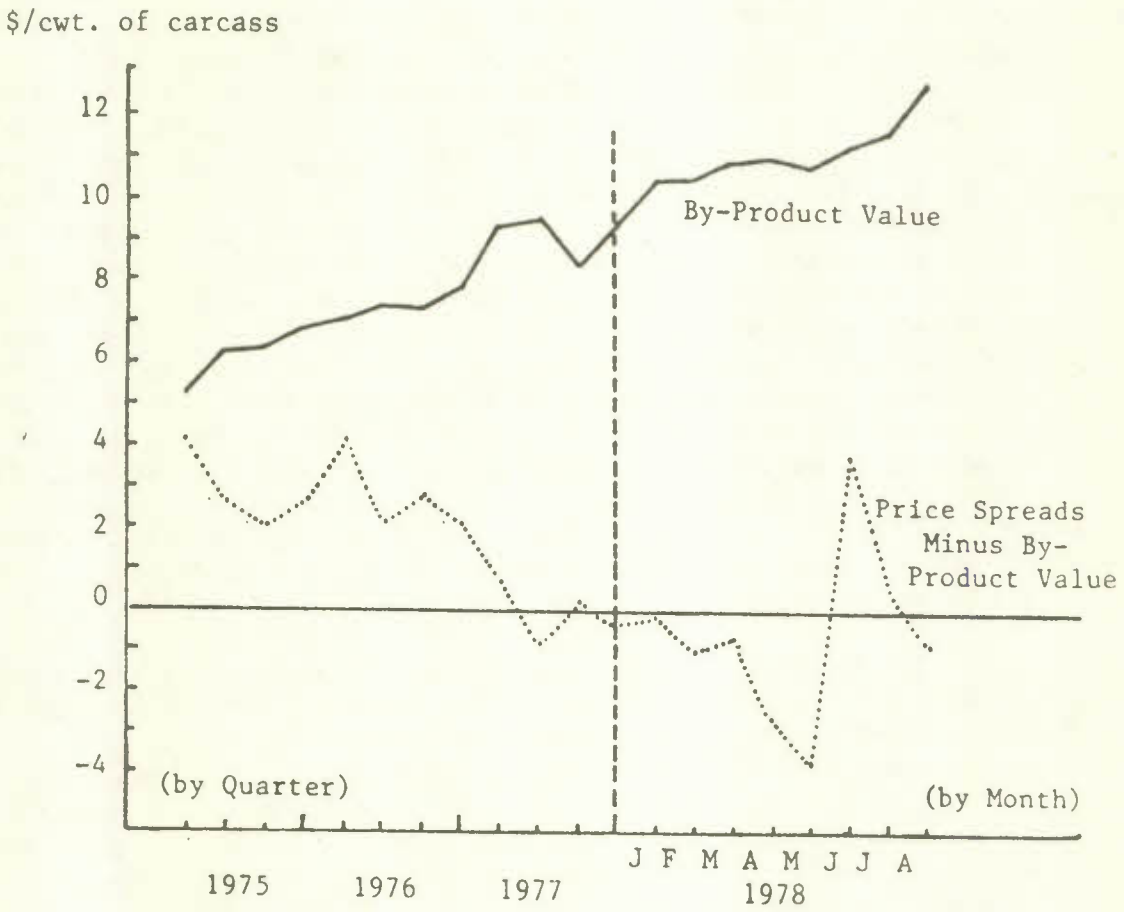
The data in Chart 5-2 indicate calculated farm-to-wholesale price spreads for the period 1975 to 1978. Edmonton is also provided for comparison with Toronto. The spread does vary considerably, partly in response to the change in by-product values. The spreads in Toronto appear to be consistently below those in Edmonton. The rapid rise in margins in mid-1978 appear to have been associated with the work stoppage at two of the major national packers in June and July 1978. Both of these observations support the general economic argument that more competition produces lower marketing margins.

The wholesale-to-retail price spreads in Chart 5-3 are obtained by reconstituting beef carcasses from retail. This is an inexact process but it is essential to the computation of marketing margins. The data in Chart 5-3 consist of estimates of retail carcass value based upon six major retail cuts.[71] Clearly the retail margins also vary, reaching a peak during the packer strike in mid-1978. In addition, the percentage margins obtained by retailers also increased. Consequently, by maintaining or increasing percentage margins as beef prices began their dramatic rises in 1978, retailers added to price increase. To reiterate, however, margin analysis by itself does not provide the information to indicate what the

"right" margin should be; it only describes, with some possible inaccuracies, what has happened.

Chart 5-1

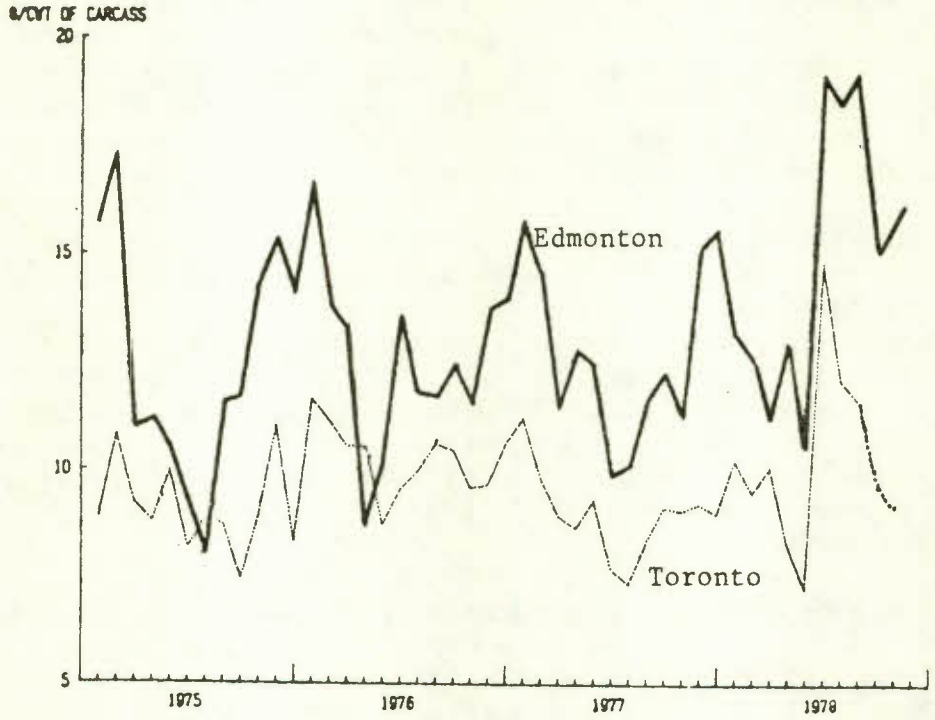
Beef By-Products Values - Toronto
1975-78



Source: Agriculture Canada, Market Commentary, Animal and Animal Products, September 1978, p. 29.

Chart 5-2

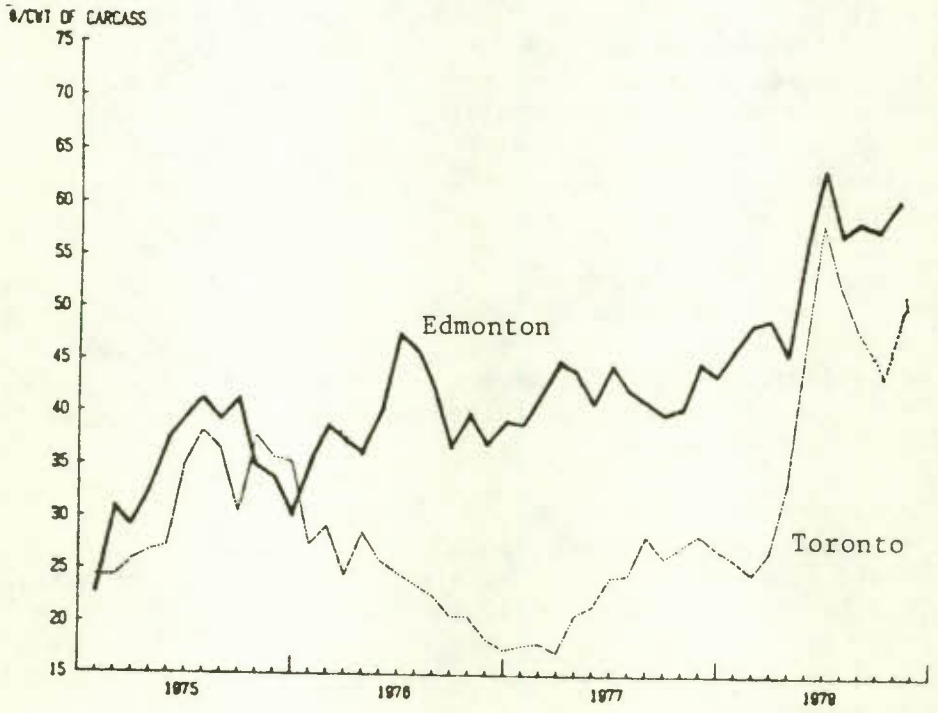
Live-to-Wholesale Price Spreads in Two Canadian Centers



Source: Agriculture Canada, Market Commentary, September 1978.

Chart 5-3

Wholesale-to-Retail Price Spreads in Two Canadian Centers



Source: Agriculture Canada, Market Commentary, September 1978.

Chickens -- Chart 5-4 summarizes the two components of the marketing margin for broiler chickens in Canada. The data are monthly averages at the national level, and for the period October 1976-78. Prices are expressed on an eviscerated basis, which is comparable to carcass weight in beef. In contrast to beef, the by-products obtained in converting live poultry to the eviscerated form are almost valueless, and the product produced by the poultry processor is usually the form purchased at retail. Cut-up chicken requires retail processing, but it is a much simpler process than cutting up large animals.

The processor margin on chicken has increased in Canada over these two years. Indeed, it appears to have moved from levels several cents under the retail margin to levels equal to the retail margin. If this is so, it represents a substantial increase over traditional processor/retailer margin relationships. At the same time, retail spreads appear to have risen from under 20 cents per pound to over 25 cents per pound. Concurrent research by the author of this report is analyzing whether the increasing margins in poultry products are attributable in part to the supply management programs in poultry. There are strong reasons to believe they may be.

Turkeys -- Chart 5-5 presents the two components of the marketing margin for hen turkeys in Canada expressed as monthly averages at the national level for the period October 1976 to December 1978. As in Chart 5-4, the prices are given on an eviscerated basis. Similar to broiler chickens, the by-products obtained in eviscerating turkeys have little or no value, and the product produced by the processor is usually the form purchased at retail. While the retailing of turkey parts requires some further processing, it is a simple process compared with the cutting up of large animals.

The processor margin on turkey has increased greatly in Canada between October 1976 and December 1978, with the most dramatic rise having occurred in the latter half of 1978. The increase in 1978 coincided with the so-called "shortage" of turkeys in 1978. While retail margins rose moderately over the two years in question, they do not approach the increases in processor margins. The result was an apparently significant widening of the already substantial difference between traditional processor/retailer margins.

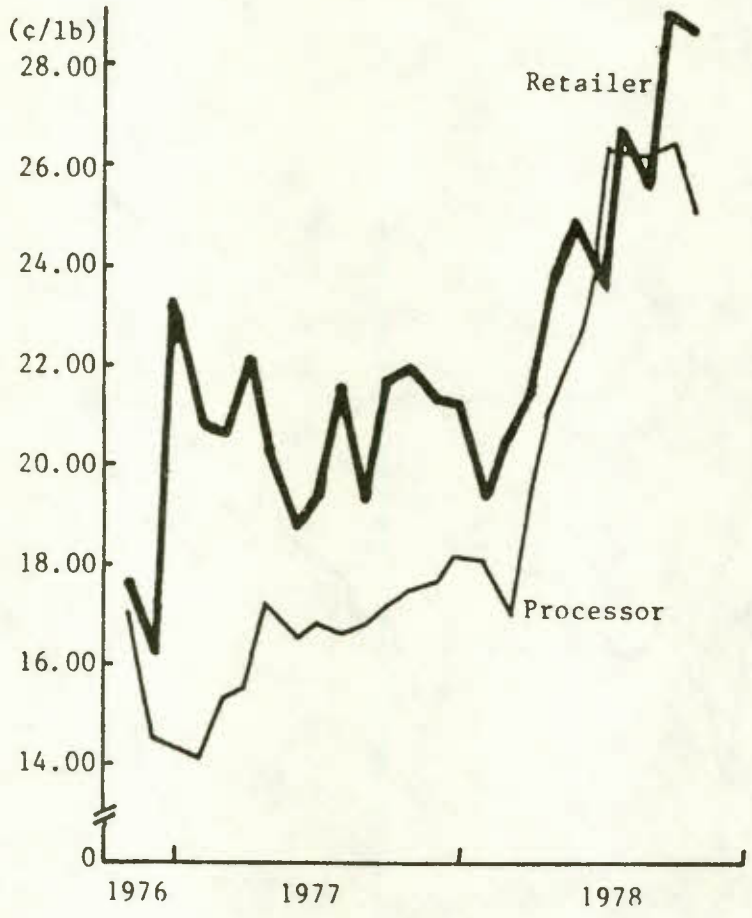
A study by the Department of Consumer and Corporate Affairs[72] compared its estimates of price spreads on five commodities -- pork, beef, chickens, turkeys and eggs -- for Toronto and selected U.S. markets. The objective of this analysis was to assess performance of these Canadian food markets relative to the more competitive and more market oriented U.S. market. The results showed

> " ... that processors' margins have accounted for a larger percentage of the retail food dollar in Canada than in the United States. On the other hand, for the same commodities, Toronto retailers were found to operate on dramatically lower price spreads than their U.S. counterparts. This trend persisted throughout the seven year period investigated.

Chart 5-4

Broiler Chicken Price Spreads

1976-78

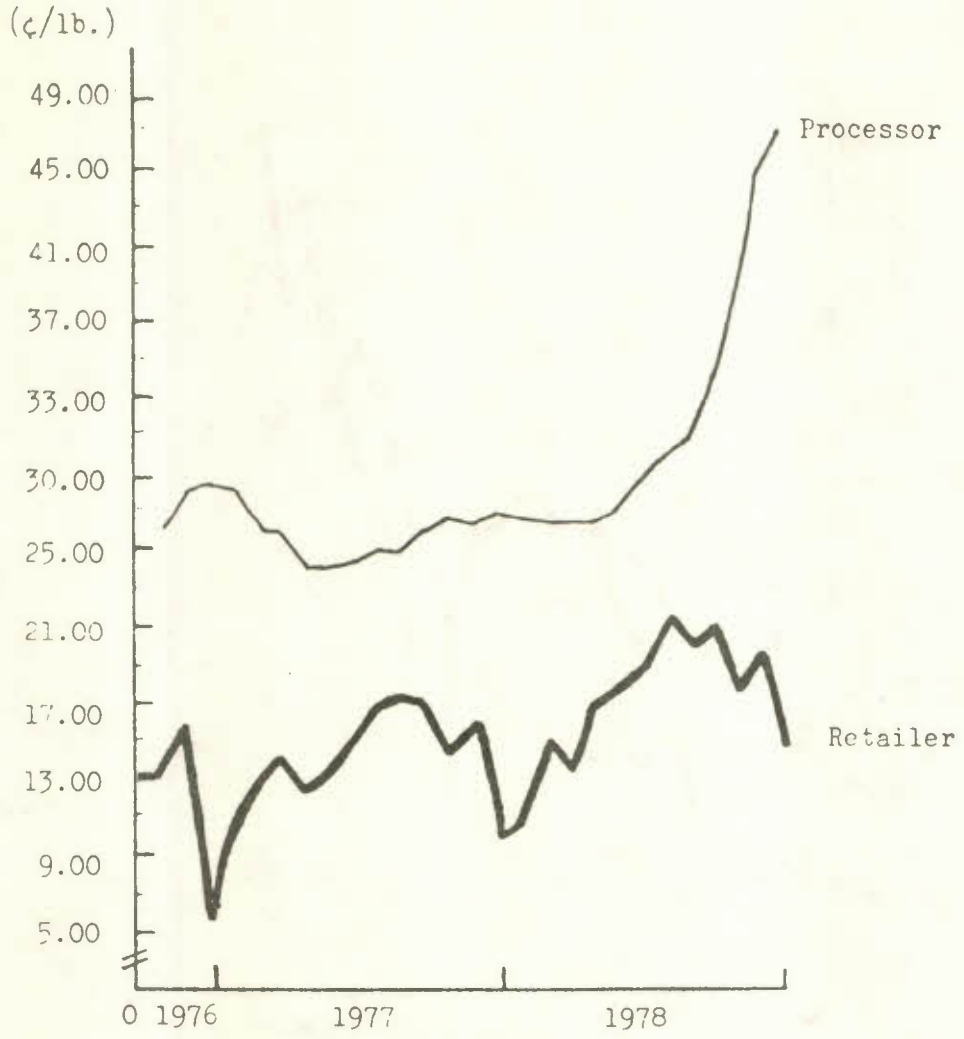


Source: Agriculture Canada.

Chart 5-5

Turkey Price Spreads

1976-78



Source: Agriculture Canada.

Unfortunately, this study was based only upon Toronto retailing where there is considerable evidence available to suggest much more competitive conditions than elsewhere in Canada. These results are very interesting but their ability to be generalized certainly has to be questioned.

In conclusion, this section was introduced with the qualification that the public's interest shown in margins cannot be matched by hard evidence. The major conclusion of this section is, therefore, that if food price issues remain as major public concerns, more resources and more consistent effort should be placed on generating a consistent and comparable set of margin data. The analysis should be done on a broad enough cross-section of products, and tied in with profits analysis, to provide a comprehensive picture of food company pricing behaviour and performance. This cannot be done with data currently available.

VI SPECIAL COMMODITY REVIEW

Food price increases, whatever their source and whatever their cause, are always associated with some form of public discontent. They are also usually accompanied by considerable political debate. Sometimes they stimulate some form of government action. The broad process of reaction at the political level in the form of the House of Commons Special Committee in 1973, the Food Prices Review Board from 1973 to 1975, and the Anti-Inflation Board from 1975 to 1978 were discussed in Chapter 2. The Centre for The Study of Inflation and Productivity devoted some of its very limited resources to food during its short tenure. The public and the media also expressed themselves during the seventies.

The purpose of this section is to provide some additional detail on four particular commodities which have generated a great deal of reaction by the general public and by the media. Sugar and coffee, although not important to either nutritional or expenditure considerations, generated a great deal of noise. This was probably because of the rate and extent of price increase. Many would argue that the decrease in consumption that occurred in sugar, and coffee to a much smaller extent, in response to the increased prices should be taken as a positive factor. Public reaction did not seem to agree.

Dairy prices have been in the news repeatedly. Despite rapid and large increases in their prices, dairy farmers complained and displayed a degree of militancy not characteristic of Canadian agriculture. In addition to farmer reaction, consumer and public interest groups have become increasingly vocal with their concerns that an important and basic nutritional source is being priced out of reach of many who need it. Finally, beef prices are always able to generate a public discussion. The era of the seventies appears to have produced an increasing amount of attention on beef prices, right into the present. This report could not close without focussing on beef.

In this last section, some additional discussion of these four commodity areas -- sugar, coffee, dairy products and beef -- is provided. A number of other commodities could have been included. These were selected for their public sensitivity.

Sugar and Coffee

During the 1974-77 period, the components for North America's twice daily tradition of the "coffee-break" became very expensive. Initially in 1974, sugar prices rose. By 1977, coffee had increased almost three fold. Even cream rose rapidly during this period.

Canadians purchase all of their coffee, and most of their sugar, from the international market. As a result, we are totally dependent upon international conditions. A combination of factors, partly weather and partly political, produced unprecedented sugar prices in 1974-75, and unprecedented coffee prices in 1977. But, as with most free market or

market oriented situations, prices have also come down. The high prices have caused expansion in production, retractions in consumption, and a return toward previous lower levels. Indeed, in sugar, the upward movements of price over about one year was followed by an almost identical downward movement. Coffee prices do not appear to have completed their movement, but the rise and fall have been reasonably symetric to date. Again, this tends to be a characteristic of market determined prices; an increase may be uncomfortable and suspicious to observers, especially buyers, but it will likely also be followed by a return to lower levels, considering, of course, that overall prices have continued upward. Administered prices may not rise as far or as fast, nor do they fall.

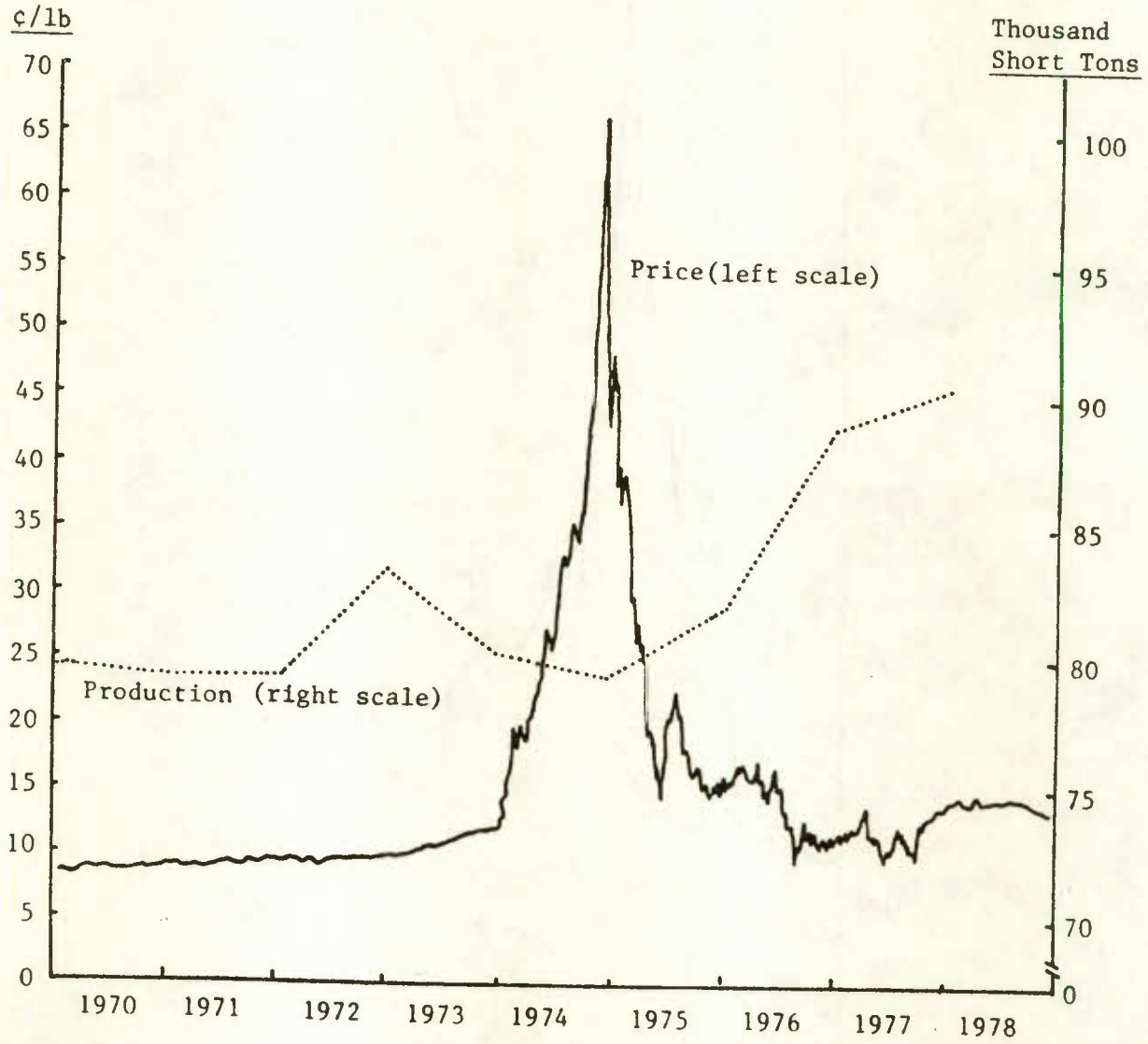
Sugar prices began their climb in late 1973 (Chart 6-1). Of importance in causing sugar prices to rise was a drop in production beginning in the 1973-74 crop year. This reduction was fairly general among producing countries, and was enough to cause a sharp price increase. The reason for the magnitude of the price change is that the amount of sugar traded on the so-called free market is small in terms of total trade (about 11 per cent according to the Food Prices Review Board).[73] Another factor was the anticipated end to the International Sugar Agreement which was becoming more certain throughout 1973. This caused a degree of uncertainty among importing nations on procuring supplies, and some scrambling to tie down requirements to cover the possibility of shortage if traditional supplies disappeared. There were also uncomfirmed reports that some of the increasing supplies of petro-currencies at the time were being used for speculative purposes. The use of petro-dollars represented a short-term net increase in demand.

Sugar and items using large amounts of sugar rose dramatically in price in 1973 and 1974 (Chart 6-2). Consumer reaction was swift and strong. The media and others of the public also reacted. Coincidently, and of really no significance to the price increases, three eastern sugar refiners were brought to trial in Quebec under the anti-combines laws for alleged price fixing over a period beginning in 1969. After a long trial, the companies were acquitted in 1975, but a higher court in 1978 reversed the decision and the firms were fined. Paradoxically, the question of lack of competitiveness of sugar processing and distribution in Canada (highlighted by the publicity surrounding the trial) had little to do with the erratic price behaviour at the time.

During the "sugar crisis" a number of proposals were made for alleviating the problem and for preventing its recurrence. Among these were expansion of domestic production to reduce dependence on off-shore sugar. This would, however, have required substantially higher prices than had existed before the rise because support levels to domestic producers were higher then import prices.[74] Another option was negotiation of long-term purchase arrangements. But either of these options, although <u>possibly</u> "stabilizing" sugar prices, would almost certainly have done so at higher-than-historic and higher-than-present prices. It is likely that either option would have almost doubled the raw sugar price to processors. Consequently, the short-term instability in sugar prices appears to be offset by lower long-term prices.

Chart 6-1

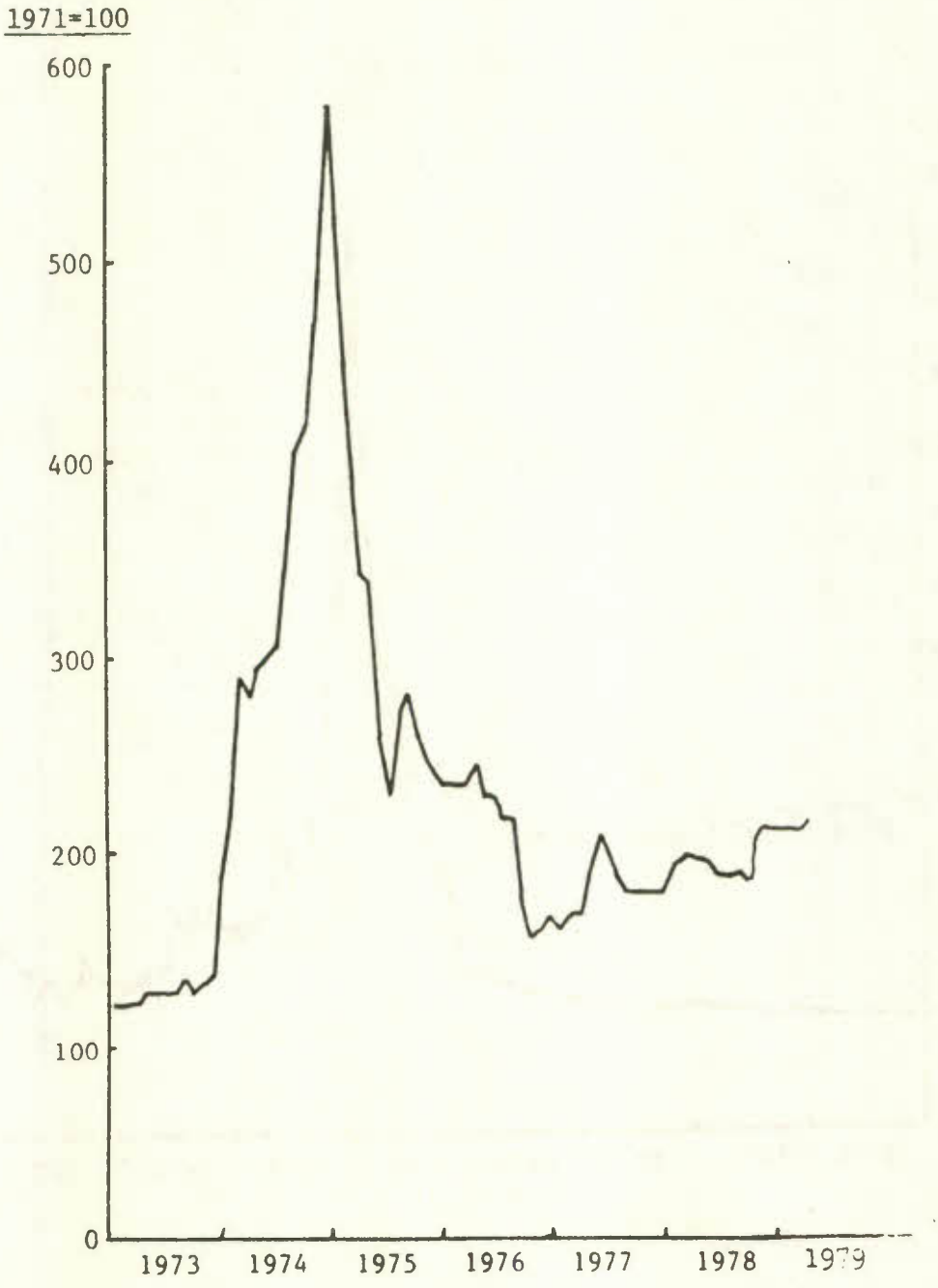
Sugar "12" (Domestic) New York
(weekly average of nearest futures)
1970-78



Source: Commodity Research Bureau Inc., Commodity Year Book 1978, p. 331.

Chart 6-2

Consumer Price Index - Sugar
Canada, 1974-79



Source: Statistics Canada, Consumer Prices and Price Indexes, Catalogue No. 62-010, Quarterly, 1979.

As sugar prices were settling back to more normal levels in 1975, coffee prices took off. Brazil is by far the largest coffee producer in the world (up to one-third of total production) and it had two short crops. Production fell from 27.5 million bags in 1973-74 to 23.0 million in 1975-76; then following a severe freeze in 1976, production fell to 9.3 million bags. The effect of this on World Exportable Production shows up in Chart 6-3. In April 1977, green coffee prices in international trading peaked at U.S. $3.40 per pound. Canadian prices for coffee products followed these increases, and closely related beverages (tea) moved up as well (Chart 6-4). Prices declined in 1977, and have continued to move down into 1979.

During the period of high coffee prices, some of the coffee producing nations attempted to follow the OPEC model and implement at least price minimums. To date these arrangements appear to be relatively weak and ineffective. Brazil appears to have replaced its lost trees and is again increasing production. It requires up to five years to bring new trees into production, and it can be expected that that length of time will be required to achieve comparable per capita supplies of coffee, and price levels comparable to 1975 levels. This, of course, assumes no further serious weather problems or political disruptions. But prices have adjusted downward again, and are at or below the pre-1976 levels. As in sugar, high prices have been followed by increases in production and lower prices: sugar has regained its earlier levels; coffee appears to be headed in that direction.

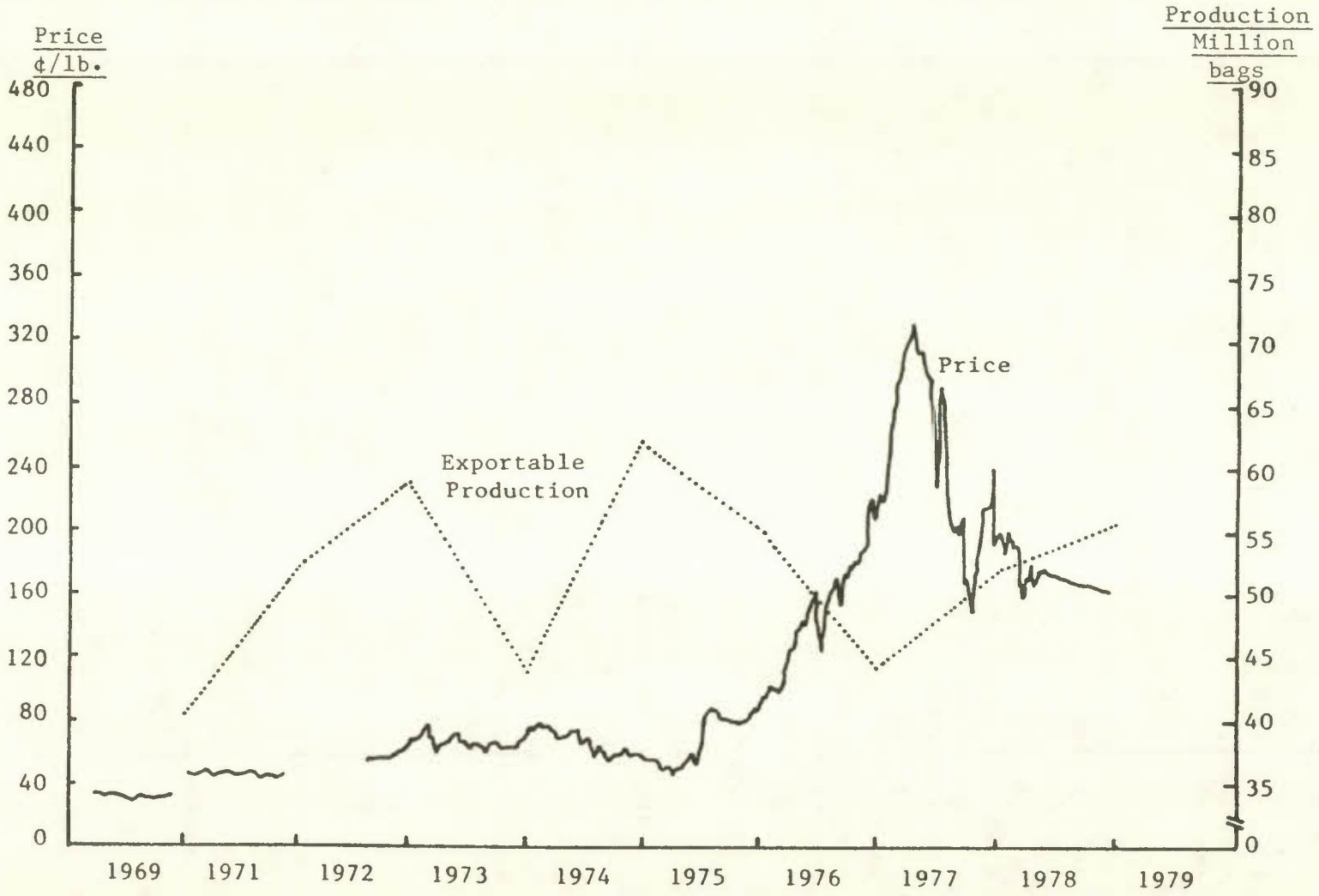
Dairy and Milk Prices

Dairy prices have also caused their share of controversy. This has arisen from producers unhappy with the supposed low prices they receive, from Ontario and Manitoba cheese processors unable to obtain raw product, from consumers concerned about high-cost basic nutrition, and from analysts able to speak out who are concerned about the high public cost and market inefficiencies of the dairy program. The purpose of this section is merely to review some of the specific information on price formation and pricing relationships in the dairy industry.

Several basic factors affect the status of the dairy industry and the struture of Canadian dairy prices. Milk pricing has for decades been treated differently than other commodities in Canada, probably because of the perceived "completeness" of milk as a food and because of its perishability. Consequently, milk has traditionally been more heavily regulated and supported than other agricultural commodities. (This is true in almost all countries.) This has helped produce the situation in which social aspects of the industry are as important in administering the industry as economic considerations. Finally, the industrial milk sector has become highly politicized in recent years.

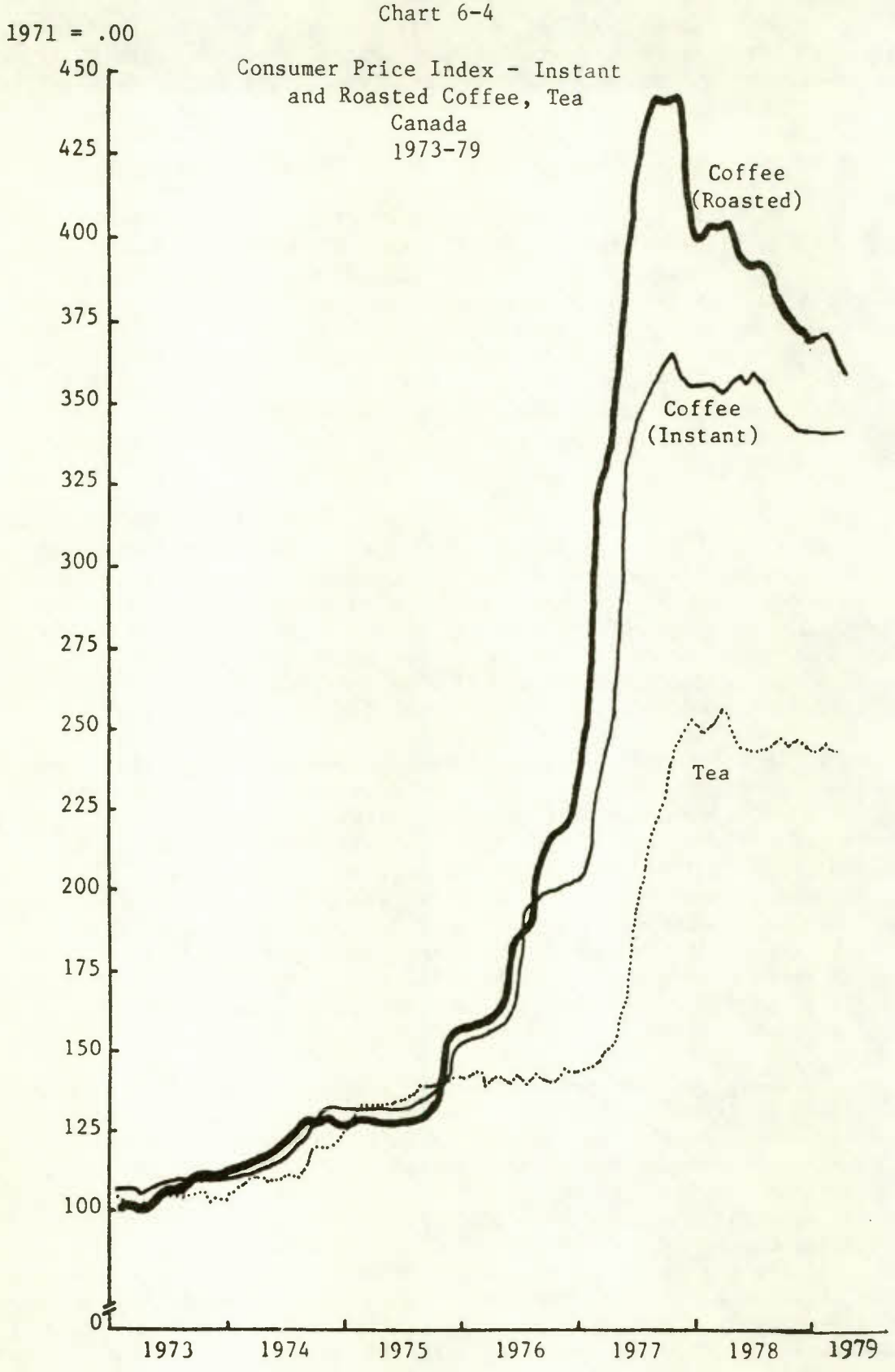
Chart 6-3

Coffee "C" New York
(weekly average of nearest futures)
1969-78



Source: Commodity Research Bureau Inc., Commodity Year Book 1978, p. 118.

Chart 6-4



Source: Statistics Canada, Consumer Prices and Price Indexes, Catalogue No. 62-010, Quarterly, 1979.

Within this setting, all dairy prices in Canada are administered in two different ways. Provincial milk control agencies regulate fluid milk marketing and prices; some provinces set prices at the farm and retail level, others set them only at the farm level. The Canadian Dairy Commission regulates all industrial milk production and determines producer prices in relation to support prices on butter and skim milk powder.

Since 1971, dairy prices in the CPI have increased over 100 per cent. Since 1974, the Government of Canada has paid over $1.6 billion of stabilization funds directly to industrial milk producers. It spent another $112.9 million to hold down the increase in fluid milk prices between October 1973 and February 1975, and $54.2 million to hold down the increase in prices of "consumer packs" of skim powder from October 1973 to mid-1978. The magnitude of these numbers is significant: the dairy industry is a significant industry; and, dairy products are a significant component of Canadian nutrition. Canadians should understand the pricing process in this industry.

In the early seventies, Canadian industrial milk producers were having difficult financial times. The Canadian Dairy Commission, organized in 1967, had not yet been able to "rationalize" the industry and production was falling. Prices were considerably below those received by fluid producers. When rising feed costs hit dairy production in 1972, and even into 1974, producer prices tended to lag behind cost increases. Although fluid producers generally fared better in relation to rising feed costs, 1973 and 1974 were difficult times for most dairy producers.

In 1974, the federal government moved to substantially improve the profitability of dairy production. A series of price increases beginning in 1974 brought the "target price" (i.e., the combined butter and skim powder price) from under $8.00 per cwt. to $12.94 in January 1979.[75] In 1974 and 1975, the federal government paid a subsidy to hold fluid milk prices down to consumers, and subsidized the price on a small proportion of domestic skim powder usage until mid-1978. During this period, as well, the size of the direct subsidy to farmers increased to $2.66 per cwt., and rose in terms of dollars from $251 million in 1974-75 to a peak of $477 million in 1977-78. The combined federal subsidy during this period exceeded $1.8 billion.

The pattern of producer prices between April 1974 and January 1979 is summarized in Table 6-1. The actual pricing process for industrial milk, and determination of the data in Table 6-1, deserves a small note. In principle, producer prices are indexed upwards as costs rise, i.e., producers are supposed to be assured that their production costs are covered by selling prices. The producer price is determined by deducting a processing charge from the target (butter and skim powder) support price, and by adding the federal government subsidy. In addition, producers pay a "levy" towards a fund for subsidized exports of skim powder and butter (when required). The target price determines what processors pay for industrial milk; but the combination of all the other factors determines what producers receive. For any given "target price", producer price could vary according to the processing charge, the amount of federal subsidy, or

the size of the "export levy". The reverse statement is also true. Industrial milk pricing is a complex process.

Fluid milk pricing varies from province to province and, of course, is not tied to a butter/skim powder support price. It does not generally involve a subsidy program. In general, however, the pricing process is similar. Most provinces have a hearing process or formula basis by which producer prices are determined. In principle, the objective is to assure that the producers receive a price sufficient to cover costs and some rate of return for a given supply of milk. In those provinces where prices are regulated beyond the farm gate, the regulatory agency also must rule on acceptable margins for processors or retailers. In all cases, production at the farm level is tightly controlled.

Table 6-1 provides a simple comparison of the Canadian industrial milk program with that in the U.S. Average producer prices in the North Central region of the U.S. were selected because production there is under conditions most comparable to Ontario and Quebec where the bulk of Canadian production occurs. The U.S. uses a form of administered pricing but has no production controls. It uses border controls but they are more flexible than Canada's. The data show that U.S. farm prices have been more variable than those in Canada, that they are lower than Canada's and, as with retail prices, have risen less since 1974.

Table 6-1

Canadian Industrial Milk Pricing
1974-79

Date	Support Prices		Target Price	Processor Margin	Sub-sidy	Export Levy	Approx. Producer Return	U.S. Producer Price*
	Butter	Skim Powder						
	(cents/pound)		($/cwt)	($/cwt)	($/cwt)	(¢/cwt)	($/cwt)	($/cwt)
Apr.1974	77	50	8.50	1.03	2.30	.15	8.35	8.50
Aug.1974	85	54	9.41	1.04	2.56	.15	9.26	6.92
Jan.1975	90	59	10.02	1.04	2.56	.15	9.87	7.67
Apr.1975	103	64	11.02	1.09	2.66	.45	10.57	7.58
Jul.1975	103	64	11.02	1.09	2.66	.90	10.12	7.71
Oct.1975	103	64	11.02	1.09	2.66	.65	10.37	8.51
Apr.1976	108	68	11.45	1.19	2.66	1.35	10.10	9.36
Apr.1977	118	70	11.86	1.36	2.66	1.20	10.66	9.03
Jan.1978	122	72	12.18	1.36	2.66	1.20	10.98	9.74
Apr.1978	127	74	12.42	1.49	2.66	1.00	11.42	9.78
Jan.1979	132	78	12.94	1.55	2.66	1.00	11.94	11.50
Apr.1979	137	81	13.29		2.66	1.00		
Aug.1979	142	83.5	13.67		2.66	1.00		

*North Central U.S. Price from Agriculture Canada, Market Information Service, Dairy Produce Report.

Source: Canadian Dairy Commission.

Beef

Beef prices rose dramatically in 1978 and early 1979, eased in mid-1979 but some experts are forcasting further increases in 1980. Forecasts generally are for easing of prices after 1980 and some probable downturn in 1981. A combination of two factors are at work in the beef market. First, the surge in cattle and beef prices in February, March and April of 1978 (and 1979) appears to be a seasonal price increase. A few years ago, this seasonal increase appeared to occur in spring and early summer as eating patterns changed to outdoor cooking. For two years, at least, the demand pressure has come earlier. The second force at work in the beef market is the rising portion of the "beef price cycle" associated with relatively low supplies of cattle caused by unprofitable prices during 1974 to 1976. This has been a North American, even a world wide phenomenon, and consequently, Canadian beef prices are only following a more broadly based beef phenomenon. The size of the increases in Canada are, however, directly influenced by the exchange rate situation with Canadian cattle prices currently riding about 15-18 per cent above comparable U.S. prices. Consequently, a number of forces have coincided to produce the highest beef prices in Canadian history, with prospects of further increases.

To fully understand this part of the beef cycle, it is necessary to move back in time to about 1969. At that time, grain conditions in Canada and the U.S. were extremely depressed. Government policy was aimed at reducing grain production, prices were low, and in Canada inventories were backed up on the farms. Ordinarily, when this occurs in grain, livestock expansion follows because grain can be moved through livestock and because feed is relatively inexpensive. Expansion in hogs takes one to two years, expansion in cattle takes three to five years. Producers did respond as expected but, because of the depressed state in grains, several provincial governments in Canada also implemented programs to promote livestock expansion. Consequently, expansion efforts were intensified and the basis laid for substantial production increase in later years. Hog prices bottomed out at heavy-loss levels in 1970 and 1971. Cattle prices dropped later.

In 1973, the U.S. prices controls program distorted the normal pricing mechanisms in beef, which ultimately caused serious trade disruptions between Canada and the U.S. in beef and cattle. Throughout 1974 and 1975, there were a series of trade barriers applied and removed which caused substantial uncertainty in the beef market. During this period, feed costs had increased and, for short periods at different times cattle feeders lost huge sums of money. In late 1974 and during 1975 and 1976, cattle prices were at very low levels in relation to production costs, cow prices were falling, and generally, the cow-calf sector was depressed. International conditions were also depressed with Australian frozen boneless beef available in Montreal at prices as low as forty cents per pound. During 1975, dairy producers were forced to cut back production, and thousands of additional dairy cows were slaughtered or shipped to the U.S., which further depressed the beef market. All of these factors culminated in low cow and calf prices throughout 1975 and 1976, and low

finished cattle prices in 1976. A federal stabilization payment was made on fed cattle in 1976, and a federal cow-calf stabilization program was implemented for 1977. Producer reaction in terms of slaughter is summarized in Tables 6-2 and 6-3, Charts 6-5 and 6-6, for Canada and the U.S. The pattern of Canadian cow and steer prices since 1969 is shown in Chart 6-7.

One of the reasons for giving this detail, in addition to its historic value in terms of understanding the beef cycle, is to show the incidence of government involvement in what is generally considered a "free market". Beef pricing at all levels is certainly free of any form of administration. Trade between Canada and the U.S. is not heavily influenced by tariffs, and generally non-tariff barriers on trade have been relatively unimportant. However, during this particular period, government interference in the beef market on both sides of the border has been substantial. It did influence prices at certain times, and, probably far more importantly, it has introduced a degree of uncertainty and skepticism into the beef market which both prolonged the adjustment to the bottom, and will prolong the adjustment over the top of the cycle. Cattlemen in both countries are uncertain about what measures government may invoke in response to the high prices, and are, therefore, less likely to undertake investments which would speed price corrections.

Finally, concerns have been expressed about high hamburger prices in 1979 and 1980. Hamburger is produced by grinding trimmings from table type beef, boneless beef from lower grades of finished cattle, and boneless beef from cows. The boneless cow beef may be either domestic cattle, or it may be imported in the frozen form. The attached chart (Chart 6-8) shows how frozen boneless beef (CIF Montreal) rose from the 40 cent level in 1975, to the $1.30 level in late 1978. It was reported in January 1979 that April 1979 deliveries were being contracted for at about $1.60 per pound. According to trade sources, $1.60 for raw product translates into at least $2.00 per pound retail hamburger.

As the herd build-up occurs in 1980 and 1981, the sources of hamburger meat will be in even shorter supply and the price can be expected to rise even further, and to rise in relation to the cut prices on other table beef. It is reported already, for example, that fronts of top grade steers and heifers are being "boned-out" and going into hamburger instead of going the traditional route of roasts or steaks.

There is no doubt that the very low hamburger prices experienced through the bottom of the cycle in 1975 and 1976 will not be seen again for years, if ever. They, like the other relatively low beef prices, were part of the process of contracting an overexpanded industry. Today, the experiences are reversed. Beef prices are climbing, and hamburger is likely to climb even faster. Left to market forces beef prices will fall again, but our present place in the cycle suggests not for at least two years.

Table 6-2

Meat Production, Canada
(estimated dress weight)
1970-78

Year	Beef		Pork		Total
	million pounds	%	million pounds	%	million pounds
1970	1,774	56.6	1,362	43.4	3,136
1971	1,878	54.7	1,557	45.3	3,435
1972	1,898	57.7	1,393	42.3	3,291
1973	1,911	58.4	1,360	41.6	3,271
1974	1,999	59.7	1,347	40.3	3,346
1975	2,191	65.6	1,148	34.4	3,339
1976	2,396	68.0	1,129	32.0	3,525
1977	2,414	67.0	1,188	33.0	3,602
1978*	1,983	56.5	1,528	43.5	3,511

*FI only.

Source: Statistics Canada, Livestock & Animal Products, Catalogue No. 23-303, Annual (Table 10, 1977).

Table 6-3

Meat Production, United States
(carcass equivalent weight)
1970-79

Year	Beef		Pork		Total
	billion pounds	%	billion pounds	%	billion pounds
1974	21.7	61.8	13.4	38.2	35.1
1975	24.0	67.6	11.5	32.4	35.5
1976	26.0	67.7	12.4	32.3	38.4
1977	25.3	65.7	13.2	34.3	38.5
1978	24.3	64.5	13.4	35.5	37.7
1979	23.1	61.1	14.7	38.9	37.8

Source: Talk by E. Wilson, Director of Economics and Statistics American Meat Institute at the 1979 Annual Meeting of the Meat Packers Council of Canada, Calgary, Canada, February 5, 1979.

Chart 6-5

Beef Marketing - Canada
(percent of total)

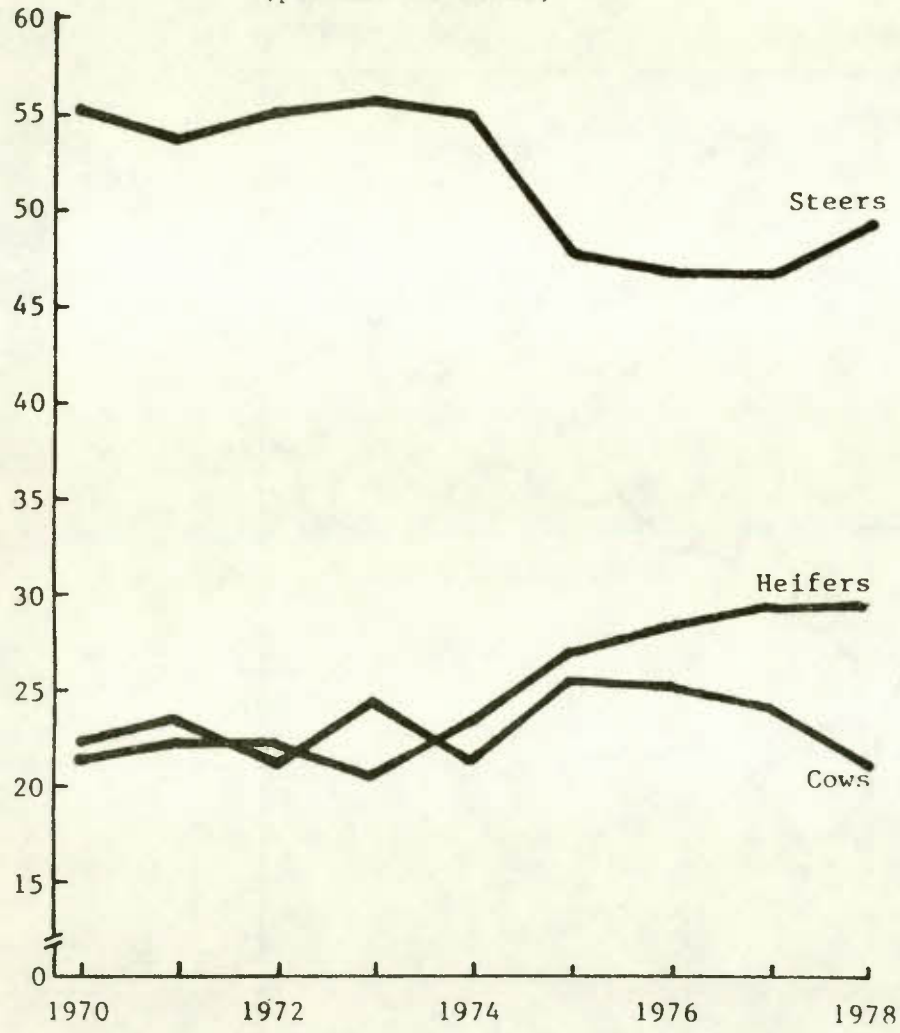
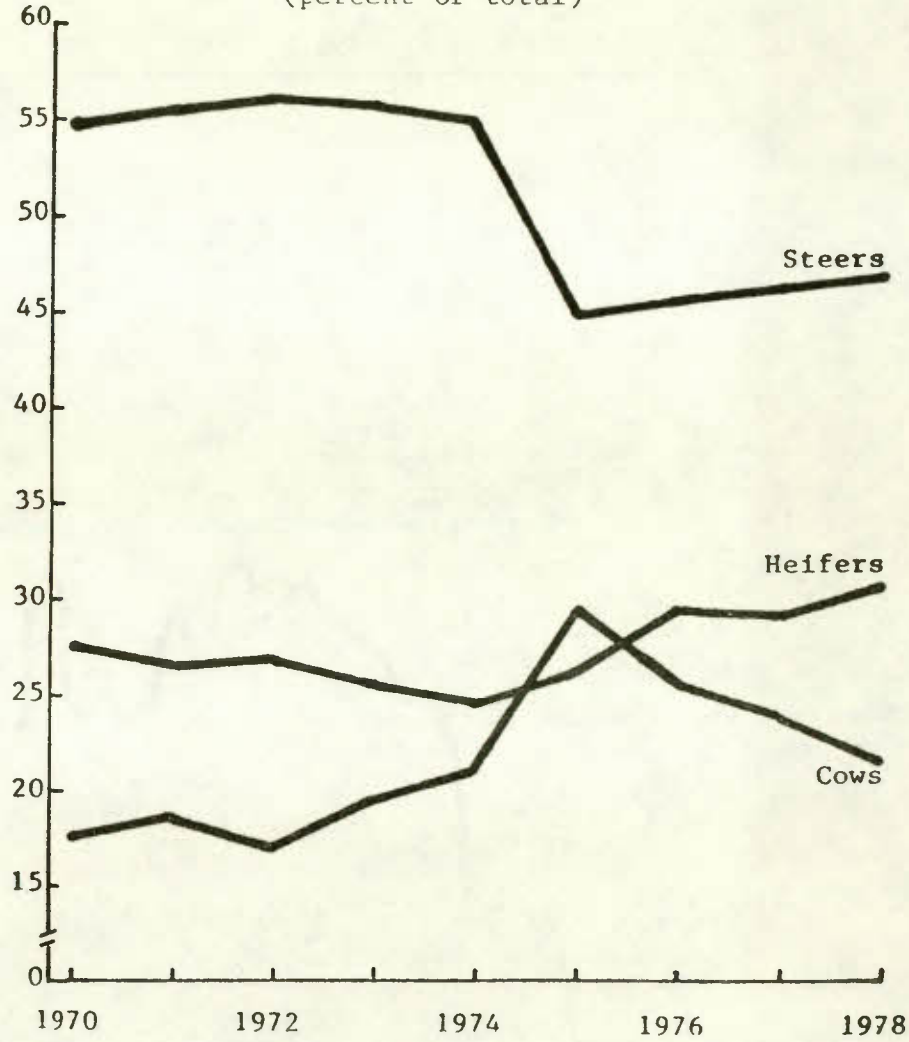


Chart 6-6

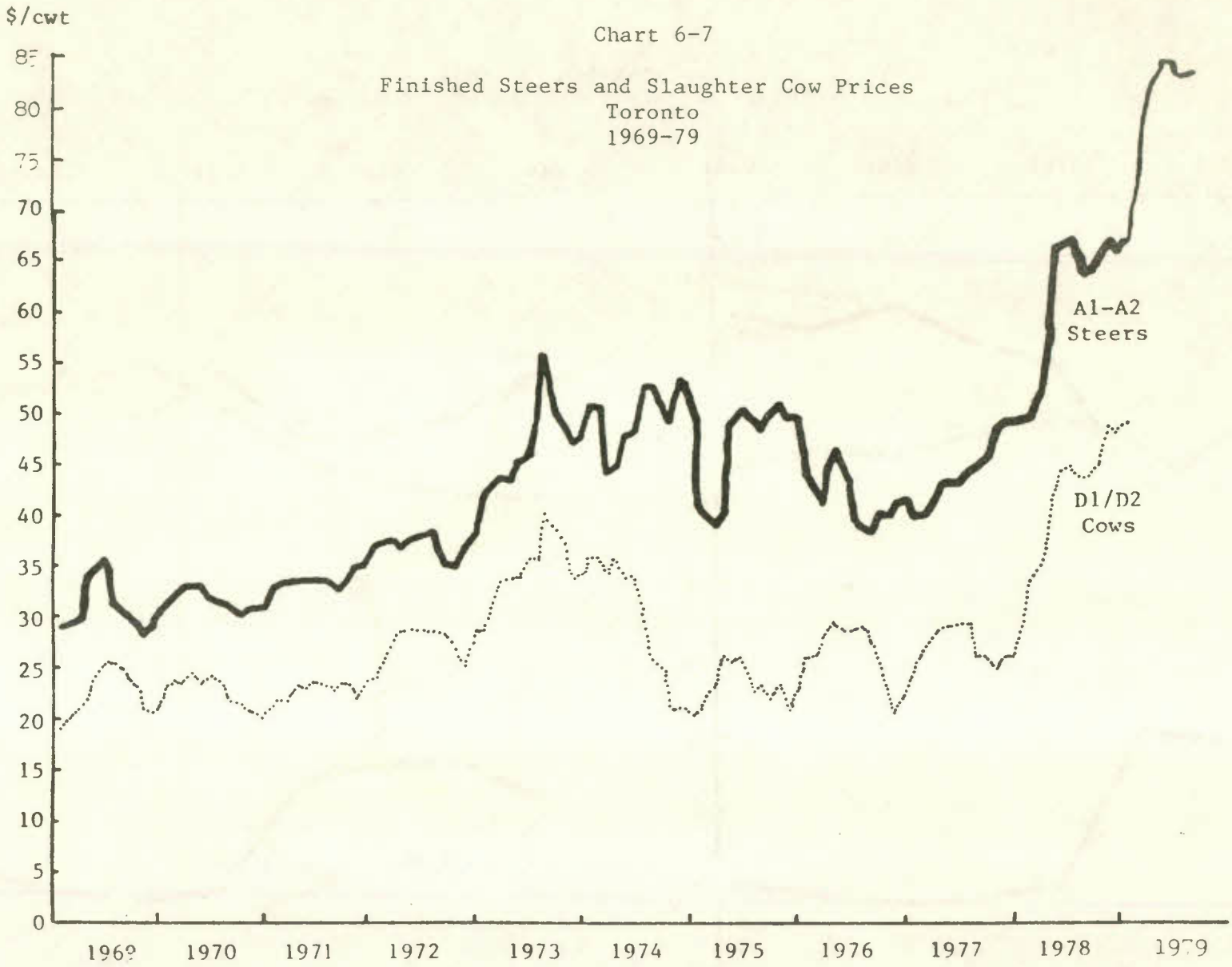
Beef Marketing - United States
(percent of total)



Source: Canada, Livestock Market Report.
U.S., E. Wilson.

Chart 6-7

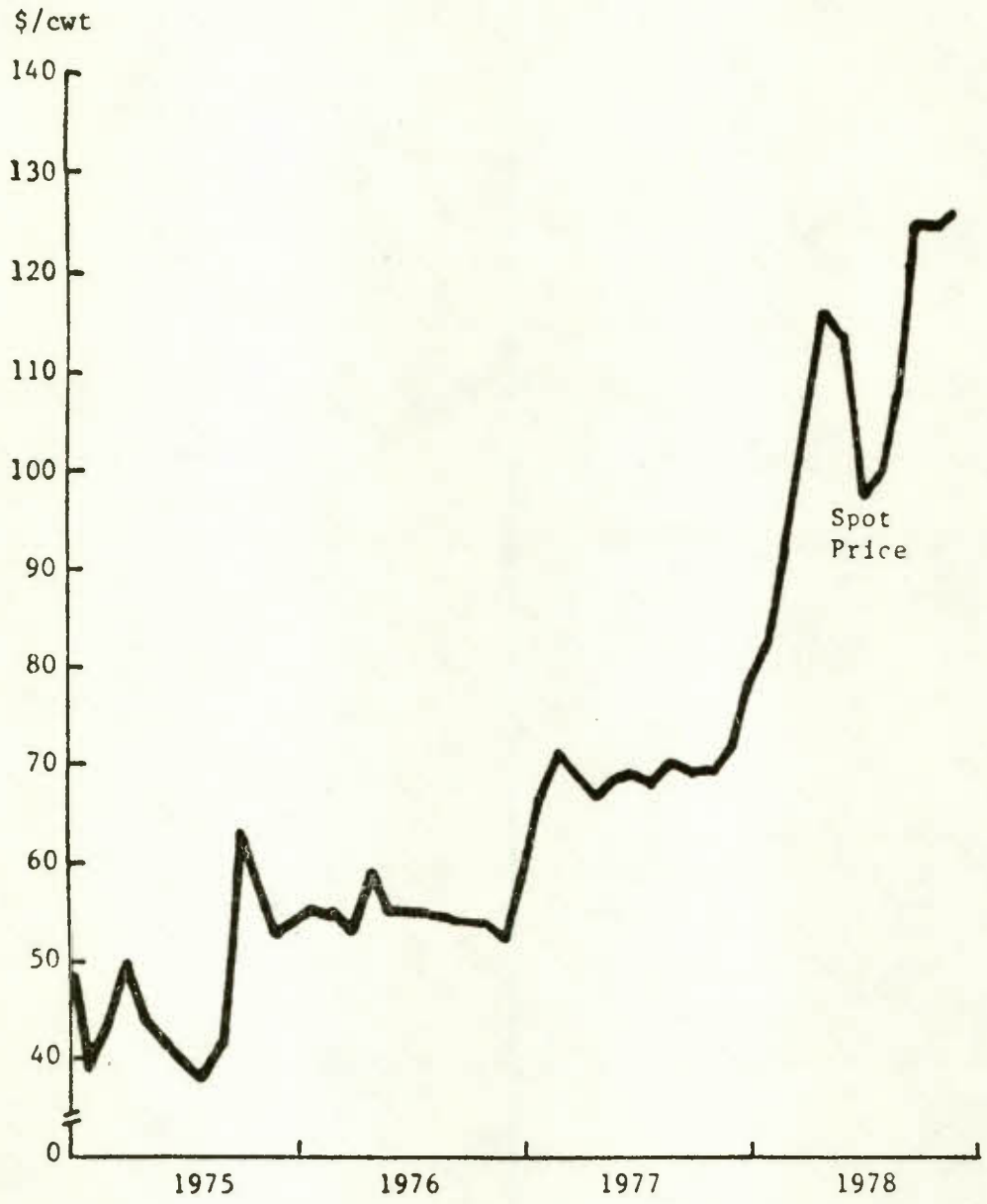
Finished Steers and Slaughter Cow Prices
Toronto
1969-79



Source: Agriculture Canada, Canada Livestock and Meat Trade Report, Monthly Statistics (1969-78).

Chart 6-8

Price of Imported Frozen Boneless Cow Meat



Source: Confidential Trade Sources.

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FOOTNOTES

1 Special Committee of the House of Commons, Trends in Food Prices, Issue No. 17, 1973.

2 R.M.A. Loyns and L.R. Rigaux, "Government Involvement in the Canadian Food System," publication pending, Dept. of Ag. Economics, University of Manitoba, 1979.

3 Hon. Eugene F. Whelan, July 31, 1975, Press Release.

4 R.M.A. Loyns, "Price Indexes and the Inflation Numbers Game," in The Canadian Business, published by the Conference Board, Vol. 1, No. 3, Summer 1974.

5 Food Prices Review Board, Food Price Trends in Canada and the United States, September 1974.

6 R.M.A. Loyns, CPI and IPI as Measures of Recent Price Change, prepared for the Prices and Incomes Commission (Ottawa: Queen's Printer, 1972), p. 107.

7 H. T. Young "Principal Components, Price Indexes and Inflation" in Essays on Price Changes in Canada, prepared for the Prices and Income Commission (Ottawa: Queen's Printer, 1972), p. 21.

8 Centre for the Study of Inflation and Productivity, The Monitor, Vol. 1, No. 1, October 1978, p. 8.

9 Loyns, loc cit.

10 Economic Council of Canada, "Prices, Productivity and Employment", Third Annual Review, November 1966.

11 CSIP, op. cit., p. 8.

12 The CPI uses a weighting pattern derived from the way in which Canadian households spend their income in a particular year.

13 For the purists in indexing, the "implicit" weights derived from changed expenditure weights associated with changing prices should be taken into consideration. For our purposes, a close enough estimate is provided by using the actual index weights.

14 Selection of the three time periods was done to coincide with Canada's control program. Other periods could as well have been chosen.

15 Statistics Canada, Catalogue No. 62-001, Vol. 57, No. 11, December 1978.

16 Food Prices Review Board, Food Price Trends in Canada and the United States, September 1974, p. 8.

17 Ibid, p. 22.

18 Food Prices Review Board, Quarterly Report, September 26, 1973, p. 2.

19 Food Prices Review Board, Food Price Trends in Canada and the United States, September 1974, p. 22.

20 This proposition was more formally tested by running the same kind of correlation test used by the FPRB for the 1975-78 period. Because of autocorrelation in the data, the test of significance is rather insensitive, but it did support the observation that prices have moved apart. If further statistical evidence were required to support this conclusion, a more sensitive test would be required. It is the conclusion here that this additional effort is not required -- i.e., our prices have risen faster than those in the U.S.

21 Hon. Otto Lang, Two-Price Wheat Act Amendments, Press Release, November 19, 1978.

22 It should be noted that the process does not end there. As farmers and processors replace their equipment and many supplies, they are also likely to face higher prices. Consequently, any prolonged low level of the Canadian dollar is likely to significantly increase food production costs.

23 Terrence S. Veeman and Michele M. Veeman, "The Changing Organization, Structure and Control of Canadian Agriculture," Canadian Journal of Agricultural Economics, Proceedings, August 1978.

24 More detail on the Canadian Fertilizer Industry and fertilizer pricing is available in Agriculture Canada, A Review of the Canadian Agriculture and Food Complex - the System, 1977, pp. 125-132, and from the Competition Bureau, Department of Consumer and Corporate Affairs.

25 Agriculture Canada, Ibid, pp. 132-137.

26 Agriculture Canada, A Review of the Canadian Agriculture and Food Complex - the System, 1977, pp. 1191-125.

27 Agriculture Canada, Market Commentary, Farm Inputs, December 1978.

28 Royal Commission on Farm Machinery; Special Report on Prices, 1969, p. 3.

29 Royal Commission on Farm Machinery; Special Report on Prices, 1969, p. 2.

30 Agriculture Canada, A Review of the Canadian Agriculture and Food System Complex - The System, p. 150.

31 Agriculture Canada, Ibid, p. 150.

32 It is sometimes argued that Canadian agriculture should return to smaller units or even horse drawn equipment to conserve fossil fuels. In actual fact, modern large scale engines are very fuel efficient in terms of a given level of output. These proposals, perhaps well intended but certainly misdirected, would very quickly reduce food supplies and raise fuel use.

33 Agriculture Canada, Ibid, p. 145.

34 Agriculture Canada, Market Commentary, Farm Inputs, December 1978.

35 A Report by the Sector Task Force on The Canadian Food and Beverage Industry, June 1978, concluded, " ... the scope for productivity improvement presents the industry with its major opportunity for improved performance." This report represents the kind of industry-government review and exchange which is required both to improve knowledge on some components of the food system and to make improvements in food price performance.

36 Retail food store sales in 1979 will likely be about $22 billion.

37 Bruce Mallen, "A Preliminary Paper on The Levels, Causes and Effects of Economic Concentration in the Canadian Retail Food Trade: A Study of Supermarket Market Power," p. xi., FPRB reference paper No. 6.

38 The cost of this study in 1974-75 was less than one man-year of a middle level economist's salary or about 0.0002 per cent of the value of retail food sales in 1975. Those who criticize the Mallen Report should consider improving upon it.

39 Mallen, Ibid, p. 67.

40 D. G. Devine and M. H. Hawkins, "An Empirical Study of Metropolitan Market Conduct in Food Retailing," Canadian Journal of Agricultural Economics, XVLLL, No. 2, 1970, pp. 41-51.

41 Mallen, Ibid, p. x.

42 This simple but important point does not appear to have been analyzed in our experiences with rising prices. See R.M.A. Loyns, Challenging the Consumer and Public in Times of Accelerating Food Prices. Paper presented to the Challenges of Food Marketing Conference, Edmonton, March 1974.

43 R.M.A. Loyns and L. R. Rigaux, "Government Involvement in the Canadian Food System," Publication Pending, Department of Agricultural Economics, University of Manitoba, 1979.

44 Changes announced by the Canadian Wheat Board for the period after August 1, 1979, may alter some of the rules of marketing domestic feed grains but the final effects are not clear at the time of writing.

45 Government of Canada, A Food Strategy for Canada, June 1977.

46 "Farm" numbers are available only in years in which the Agricultural census is taken, therefore net farm income per farm can only be guesstimated in a non-census year.

47 Data presented by the Agriculture Division, Statistics Canada at the Agricultural Outlook Conference, Ottawa, December 1978.

48 R. G. Wirick, A Preliminary Paper on Some Food Policy Aspects of Farm Income, Reference Paper No. 9, Food Prices Review Board.

49 McClatchy and Campbell reported that in 1971, 50 per cent of all farm operators reported some off-farm work, and that off-farm income accounted for 40 per cent of total farm family income. D. McClatchy and C. Campbell, "An Approach to Indentifying and Locating the Low Income Farmer," Canadian Farm Economics, Vol. 10, No. 2, April 1975, pp. 1-11.

50 Geo. Brinkman, Agriculture and Food Issues in the 80's, Paper presented at the Meat Packers Council of Canada Meeting, Calgary, February 6, 1979.

51 R. Paul Shaw, "Farm Incomes: A Look at Levels, Origins, Distributions and Farm Incomes: Non-Farm Comparisons," Mimeographed paper, 1976.

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53 Larry J. Martin and T. K. Warley, "The Role of Marketing Boards in Stabilizing Commodity Markets," American Journal of Agricultural Economics, Vol. 60, No. 5, December 1978, p. 883.

54 R.M.A. Loyns, Domestic Consumer Interests in International Grains Arrangements, Canada Grains Council Workshop, April 4, 1978.

55 Robert C. Douglas, Address to the National Dairy Council of Canada, Toronto, Ontario, September 26, 1978.

56 The WGS Act applies to the six main Prairie grains -- wheat, oats, barley, rye, flax and rapeseed.

57 See Richard Schnaffner, The Quest for Farm Income Stability (C. D. Howe Research Institute, 1977), p. 9, for a more complete discussion of the WGS Act, and its application.

58 The named commodities are cattle, hogs, sheep, corn, soybeans, industrial milk, industrial cream, and oats and barley outside the Wheat Board area.

59 Larry Martin, An Analysis of the Amended Agricultural Stabilization Act with Special Reference to the Livestock Industry, University of Guelph, September 1976.

60 Department of Consumer and Corporate Affairs, Competition Bureau, Application of Competitive Policy to the Food and Agriculture Sector, Working Paper 2, July 1978, p. 5.

61 Food Prices Review Board, Food Prices and Profits, July 1974, p. 4.

62 Food Prices Review Board, Ibid, p. 5.

63 Food Prices Review Board, Ibid, p. 4.

64 Centre for the Study of Inflation and Productivity, News Release "Information", December 19, 1978.

65 Food Prices Review Board, Food Company Profits and Food Prices II, October 1975.

66 Anti-Inflation Board, A Study of Profit Margins in the Food Industry, October 1978, p. 33.

67 Anti-Inflation Board, Ibid, p. 33.

68 CSIP, Report to First Ministers, November 27-29, 1978, p. 3. To illustrate the problems in measuring profitability, the per cent figure originally presented was subsequently revised by CSIP on the basis of more complete and revised information.

69 Department of Consumer and Corporate Affairs, Application of Competition Policy to the Food and Agriculture Sector, Working Paper No. 2, July 1978.

70 The use of Toronto does not imply that Toronto is representative of the country as a whole. Over time, the evidence is building that retailing in Toronto is the most competitive area in the country and prices and margins tend to reflect the competitiveness by being lower.

71 The Food Prices Review Board found that estimated retail value was highly sensitive to the cuts which are used to reconstitute the carcass. In one study (Beef Prices, June 1974), actual cut-outs were taken in seven centers for a six-week period. Some results were found which contradicted those which had been done on a limited and fixed sample of cuts. Presumably, the more comprehensive cut-outs are most accurate but they are also very expensive to compile.

72 Department of Consumer and Corporate Affairs, Application of Competition Policy to the Food and Agriculture Sector, Working Paper No. 2, July 1978.

73 Food Prices Review Board, Sugar Prices and Policies, July 1974, p. 4.

74 Food Prices Review Board, Ibid, p. 23.

75 This price rose to 13.29 per cwt. in the new dairy year on April 1, and 13.69 in August 1979.