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Intervention and Regulation in Canadian Agriculture: A Comparison of Costs and Benefits Among Sectors

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TECHNICAL REPORT NO. E/I 4

INTERVENTION AND REGULATION IN CANADIAN AGRICULTURE: A COMPARISON OF COSTS AND BENEFITS AMONG SECTORS

by

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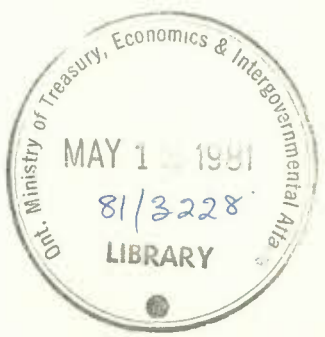

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Preface

This Technical Report was jointly sponsored by the Economic Council of Canada and The Institute for Research on Public Policy. It is one of a number of studies on regulation and government intervention in Canadian agriculture prepared for the Economic Council's Regulation Reference and the Institute for Research on Public Policy's Regulation and Government Intervention Program.

Analysis of public policy issues are inevitably coloured by the discussant's own beliefs and values. This is all the more likely in a highly controversial area such as agricultural policy, where quantitative information is incomplete and an important element of judgement is required to come to terms with many of the basic issues. This need not detract from the usefulness of the analysis, but it does require the reader to exercise particular caution in assessing the assumptions and the argumentation of those advocating a particular policy perspective. It also adds to the importance of the Council's usual disclaimer that "the findings ... are the personal responsibility of the author and, as such, have not been endorsed by members of the Economic Council of Canada." Similarly, "Conclusions or recommendations in The Institute's publications are solely those of the author, and should not be attributed to the Board of Directors, Council of Trustees, or contributors to The Institute."

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FOREWORD

This study is one of a series commissioned jointly by the Economic Council's Regulation Reference and the Institute for Research on Public Policy which deals with various aspects of agricultural regulation. These studies do not profess to cover the whole field of agricultural regulation but they do focus on several important areas of concern.

The following is a list (alphabetically by author) of agricultural studies expected to be published in this series:

*Arcus, Peter L., Broilers and Eggs

*Barichello, Richard R., The Economics of Canadian Dairy Industry Regulation

Brinkman, George L., Farm Incomes in Canada

Forbes, J.D., Institutions and Influence Groups in the Canadian Food Policy Process

Forbes, J.D., D.R. Huges and T.K. Warley, Regulation and Government Intervention in Canadian Agriculture

Gilson, J.C., Evolution of the Hog Marketing System in Canada

Harvey, D.R., Government Intervention and Regulation in the Canadian Grains Industry

*Josling, Tim, Intervention and Regulation in Canadian Agriculture: A Comparison of Costs and Benefits among Sectors

*Martin, Larry, Economic Intervention and Regulation in the Beef and Pork Sectors

Prescott, D.M., The Role of Marketing Boards in the Processed Tomato and Asparagus Industries

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* Already published

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Résumé

Le présent document donne un aperçu de l'incidence des politiques publiques interventionnistes au Canada dans le cas de certains produits -- nomémment le blé, les produits laitiers et le sucre -- et présente une comparaison des effets de la réglementation au Canada, en Australie, au Japon, aux États-Unis et dans la Communauté économique européenne. L'auteur détermine les transferts de revenu allant aux producteurs et aux consommateurs ainsi que les coûts fixes en perte de bien-être due aux programmes de réglementation.

Josling estime que le transfert de revenu qu'assurent aux producteurs laitiers les programmes actuels s'élève à environ un milliard de dollars par année, soit presque les deux tiers des recettes agricoles attribuables aux effets des politiques. Le transfert vient en grande partie des consommateurs (750 millions de dollars par année). Les coûts en perte de bien-être attribuables à la politique laitière, varient, d'après les estimations, entre 55 et 275 millions de dollars, selon les coefficients d'élasticité retenus.

Dans le cas du sucre, l'impact de la politique est très modeste si on le compare à celui de la politique laitière.

Le transfert de revenu aux agriculteurs est d'environ 3 millions de dollars. Les consommateurs paient une taxe d'environ 14 % sur le sucre, dont la plus grande partie va au gouvernement ou aux fournisseurs d'outre-mer qui sont exemptés de la douane canadienne. Les coûts en perte de bien-être découlant de l'application de la politique visant le sucre varient entre 0,2 et 0,8 million de dollars, suivant les coefficients d'élasticité retenus.

La politique relative au blé comporte, pour les producteurs et les consommateurs, des subventions qui s'établissent respectivement à environ 300 millions et 100 millions de dollars par année (la subvention allant aux consommateurs, qui provient du programme de paiement à double prix pour le blé, s'est maintenue en moyenne autour de $ 20 la tonne métrique de 1976-1977 à 1978-1979). Les coûts en perte de bien-être attribuables aux politiques relatives au blé varient de 3 à 15 millions de dollars par année, suivant les coefficients d'élasticité choisis.

Comparé à d'autres pays, on trouve au Canada un niveau relativement élevé de subventionnement implicite de l'industrie laitière, qui est moindre que dans la C.E.E., mais qui dépasse le niveau atteint aux États-Unis, en Australie et au Japon. De tous les pays étudiés, c'est au Canada que la subvention à la production du sucre est la plus faible, si l'on excepte

l'Australie, qui a tenté de réduire sa production ces dernières années. C'est aussi ce pays qui verse les subventions les plus faibles aux producteurs de blé, suivi du Canada et des États-Unis, le secteur du blé étant, d'autre part, très fortement protégé au Japon et dans la C.E.E.

L'auteur conclut que le principal risque que courent les responsables des politiques canadiennes est de s'en tenir à la structure fondamentale d'un programme agricole axé sur le marché et de résister à la tentation de s'orienter vers un système de prix garantis semblable à celui qui est appliqué dans le secteur de la production laitière au Canada et dans beaucoup d'autres pays. Selon lui, une "stabilisation autour de certaines tendances rationnelles peut accroître l'efficacité de la production : s'éloigner de ces tendances, c'est s'exposer a des difficultés croissantes qui risquent de rendre toute adaptation éventuelle beaucoup plus coûteuse".

SUMMARY

This paper provides an overview of the impact of government intervention policies for the commodities - wheat, dairy products and sugar - in Canada, and provides an international comparison of the regulatory impact between Canada, Australia, Japan, the U.S.A., and the European Economic Community. The producer and consumer income transfers are determined and the static welfare costs associated with regulatory programs are calculated.

Josling calculates that the income transfer to dairy producers from current programs is about $1 billion per year - almost two-thirds of present dairy farm revenue being accounted for by the effects of the policies. The transfer is largely at the expense of consumers (750 million per year). Welfare costs of the dairy program are estimated to range between $55 million and $275 million, depending on the elasticity estimates chosen.

The impact of sugar policy is very modest when compared to dairy. The transfer to farmers is about $3 million. Consumers pay a tax of about 14 per cent on sugar purchases, most of which goes to the government or to those overseas suppliers which have duty-free access to the Canadian market. Welfare costs associated with sugar policy range between $0.2 million and $0.8 million, depending on the elasticity estimates selected.

The wheat policy has elements of both producer and consumer subsidy. Producers benefit by approximately $300 million per year and consumers by a further $100 million per year (the consumer subsidy, derived from the Two Price Wheat program, averaged about $20 per metric ton over the period 1976/77 to 1978/79). Welfare costs associatd with wheat policies are in the range of $3 million to $15 million per year, depending on elasticity estimates chosen.

Internationally, Canada has a relatively high level of implicit subsidy for the dairy section - below the E.E.C., but above the level of the U.S., Australia and Japan. Apart from Australia, (which has attempted to curtail production in recent years), Canada has the lowest level of production subsidy for sugar of all of the countries studied. The level of producer subsidy for wheat is lowest in Australia, followed by Canada and the U.S.A., and the wheat sector is relatively very heavily protected in Japan and E.C.C.

Josling concludes that the main risk for Canadian policy-makers is to hold onto the basic structure of a market oriented farm program and resist the temptation to move into a system of price guarantees of the kind used in the milk sector and found widely in other countries. He states that "stabilization around responsible trends can increase production efficiency: isolation from such trends builds up trouble and makes eventual adaptation much more costly".

INTERVENTION AND REGULATION IN CANADIAN AGRICULTURE
A COMPARISON OF COSTS AND BENEFITS AMONG SECTORS †

Tim Josling *

Introduction

Developed County governments have taken special interest in their agricultural sectors. Since the 1930s, when agricultural markets suffered badly in the depression and the foundation of the rural economy was threatened, there has been a steady increase in the involvement by governments in the production and marketing of agricultural produce. The reasons for such intervention have to do with the perception that unregulated markets would tend to be unstable and would not generate satisfactory levels of income to the farm sector. This range of policies, however, has had its critics. Such government involvement, it is argued, can lead to distorted production patterns, international trade conflicts, prices to consumers, benefits concentrated on the larger farm businesses, and a reliance on government support which dampens innovation in the industry. In particular at a time when the control of government spending is a common goal in most countries, a reevaluation of agricultural programs, many of which go back nearly fifty years, is in order. This paper is an attempt to give an overall perspective on costs and benefits to some of the major farm programs in Canada.

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* Professor, Food Research Institute, Stanford University, USA. Comments on an earlier draft by Jim Forbes, George Lerner, Carol Bray, and Ralph Lattimore are much appreciated, though they should not be held responsible for any errors in fact or in interpretation.

† Prepared for the study on Economic Intervention and Regulation in Canadian Agriculture sponsored by the Economic Council of Canada. This paper is intended to give an overview of the structure of intervention in Canadian agriculture, and thus supplement the detailed commodity studies included in the project. See (1), (3), (7), and (8). [Numbers refer to list of references at the end of the paper.]

Intervention by governments in the agricultural market-place rests solidly on notions of the public good. Regulation, similarly, carries with it the connotation of controlling the undesirable and promoting harmony and well-being. In the face of this, the economist's preoccupation with costs may seem a little churlish. But intervention usually has a price and a given degree of regulation can be obtained in more or less efficient ways. This paper attempts to adduce some evidence at the aggregative level of the costs associated with the present level of government intervention in Canadian agriculture.

It would be satisfying to measure in the same way the range of benefits flowing from such intervention. Unfortunately, many of these benefits are not themselves easily quantifiable. Instead, one has broadly to be content with an estimate of the effect on a set of economic variables associated with the benefits, leaving to subjective evaluation the assessment of their contribution to societal bliss. These associated variables, such as farm income level and stability, serve as proxies for policy benefits if the policy objectives have been correctly specified. They do not, however, represent an adequate measure of the value placed on such outcomes, a task ultimately performed in the election booth.

The task of providing an over-view of the impact of government intervention policies in agriculture requires that one specify one or more alternative or "counter-factual" hypotheses, against which to compare the actual state of affairs. Measures of the costs and effects of protection

can only be interpreted with reference to these alternatives. The most common yardstick in such estimates is the competitive market in the absence of particular government policy measures. The extent to which such a situation is plausibly reconstructed determines the merit of the quantitative estimates of intervention costs and effects.

This paper discusses a set of such estimates, relating to the more important federal programs for some of the major commodities. No complete evaluation of government programs is attempted, and indeed the level of detail is much less than to be found in the commodity studies included in the project. Instead the intention is to provide some evidence on the order of magnitude of the effects of intervention, suggest ways in which these policy effects can be related to benefits, relate these effects to the experience of other countries, and explore the extent to which Canadian policy reacts to the broader needs of the international community as well as to domestic pressures.

The basis for the discussion in this chapter is a set of estimates prepared for the Food and Agriculture Organization of the United Nations (FAO) of the impact of government agricultural policies in seven developed countries.[1] The FAO work has the advantage of employing a consistent method across commodities and countries and allowing an interpretation of both domestic and trade impacts of policies. Its disadvantage in the present context is that it covers in detail only three commodities of interest to Canada - wheat, sugar

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1 The present author was responsible for developing the method used, but would like to acknowledge the work of several people including Tom Earley, Simon Harris, Joan Drake and members of the staff of the Commodities Division, FAO, in deriving the estimates. Neither these people nor the FAO should be held responsible for this present interpretation and use of this material.

and dairy products. In the absence of comparable work on other commodities, such as beef, corn, hogs, poultry and fruits and vegetables, the extent to which one can make statements on the totality of Canadian policy is limited. However, the inclusion of the major export crop, wheat, and a major sector servicing the domestic market (but with both export and import activity), the dairy industry, as well as a major import crop, sugar, allows some impressions of the "shape" of policy even when comparable detail for other products is absent.

The remainder of this chapter is structured in the following way. First the results of the empirical study are reported, as indicating the impact of policy in these areas on both producers and consumers. These are then interpreted in terms of their domestic significance, and finally the picture of Canadian policy thus represented is related to other countries and to the issues of international markets.

Measurement of the Impact of Government Policies on Agriculture

The measurement of the impacts of government policies on a sector is both complex and simple. It is complex in that a myriad of policies influence each sector of an economy. This is particularly true of agriculture where the level of government involvement is extensive. But it is also simple if the intention is to isolate the major impacts on producers and consumers, and if one accepts that a somewhat "cavalier" attitude to the real world is often necessary at least to derive indicative results in situations which preclude a detailed accounting of each policy instrument. If one takes the "complex" approach, one has no choice but to start by describing and analyzing each aspect of policy. Other chapters in this study have met head-on the question of

complexity. This chapter takes the "simple" approach where the degree of complexity becomes a matter of judgment as to how much detail needs to be incorporated in order to arrive at a reasonable overview.

The "simple" approach rests on the proposition that the impact of a set of policies on the agricultural and food sectors can be reduced to two basic measures: the level of subsidy which would be necessary to compensate producers (in terms of their income levels) for a removal of government support under present programs, and the level of subsidy which would have to be paid to consumers to similarly compensate for a removal of the agricultural programs. The compensating subsidy for producers can be called the Producer Subsidy Equivalent (PSE), and can be expressed in both value terms and on a per unit or percentage basis.[1] The subsidy on the consumer side (usually negative, representing a net tax) is referred to as the Consumer Subsidy Equivalent (CSE), also expressed in value terms or as a percentage or per unit measure. One advantage of identifying these two subsidy equivalents is that their total implies a net transfer from other sectors (primarily the government) into the sector being considered.

The method of calculating the producer and consumer subsidy equivalents can be sumarized in the following manner. Policies which have substantial transfer implications in the agricultural sector can be broadly classified into

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1 To distinguish between these two expressions of the subsidy, the phrase Producer Subsidy Value (PSV) will be used for the value measure, and PSE reserved for the per unit or percentage measures. Though PSV is a lump-sum measure of compensation, any actual attempt to replace present policies by lump-sum payments would of course change production incentives. These comments apply equally to the CSE and its value from CSV.

three categories:[1]

a) those that involve direct payments from or to government agencies;

b) those that involve the setting of prices, for the domestic market or for traded products; and,

c) those that control markets through the establishment of quantitative restrictions.

The first group of policies can be treated simply by apportioning the cost to or receipts of the government to the account of the sector concerned. An example would be the government payments into the Western Grains Stabilization Plan, which presumably increase farm income directly.

The second group requires that the price obtaining under the policy be compared with that which would have held in its absence. This again can often be conveniently calculated from financial data, such as the receipts from a tax or the cost of a subsidy, by dividing this amount by the quantity subject to the tax or subsidy. The price gap can then be applied to total production or total consumption as appropriate to give the implied value of producer or consumer subsidy (or tax). This method was used in most of the analysis reported here.

The third type of policy, relying on quantitative restrictions, poses a more difficult problem, as no financial flows are easily identified. In these cases, as with the quota for milk product imports for example, resort has to

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1 Since this is a functional rather than an institutional classification, the activities of marketing boards would fall under the heading indicated by their method of operation. Several types of policy are not easily included in the above schema, in particular grading standards which though sometimes used for quantitative control are in general not a means of transfering income to the farm sector.

be made to the comparison of domestic price with some less constrained market such as the price on world markets or in a neighboring country. The price gap is then related to production and consumption in a similar way to that described for the second group of policies above. For any particular commodity the transfers under different policy mechanisms are aggregated to give producer subsidy and consumer subsidy (or tax) values.

The reduction of sets of policies to a system of transfers of this nature answers directly certain types of question, and leads in a straightforward manner to others. Impacts on the sector concerned of policy mechanisms when expressed in this way make plain the question of policy incidence and lead to an elaboration of equity and distributional issues.[1] When explored over time they indicate changing involvement of government in the economic fortunes of the sector. When related to the output and consumption decisions of the sector they can readily be translated into quantity measures, allowing estimates of both domestic and trade effects. The combination of subsidy levels and quantity effects in turn give an indication, under standard assumptions, of economic welfare or real income implications. And when examined in an international context, these measures give an indication of the external face of Canadian policy.

These simplifications do, however, disregard other aspects of policy. Distributional effects <u>within</u> the sectors are not illuminated.

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1 It should not be inferred that all the value of a transfer is net income to the recipient. If producers increase output or bid up asset and input prices then others will benefit. However, for the purposes of policy evaluation it is assumed that the first stage of these transfers is the most important.

However, the chapter on incomes in agriculture and the individual commodity chapters provide information on the distributional effects of grain and dairy revenues. Different levels of acceptability by producers (and consumers) of various types of programs are obscured - since the same level of income support from whatever means is assumed to be equally acceptable. Some policies, in practice, may reach for objectives of a structural nature not directly connected to the balance of financial flows among producers, consumers and taxpayers. These policies are not well reflected in the sectoral accounting method. And, particularly important in Canada, regional or provincial impacts are not explicit - unless additional information is used.

With these qualifications, the results presented below can illustrate the broad magnitude of the impact of Canadian policy, at least in three illustrative sectors. The discussion is intended as an indication of the direction of such policy rather than a complete evaluation. Where the results are inadequate to answer satisfactorily particular questions with respect to policy impacts, the inference should be taken not that those questions are unimportant but that further work along these or other lines is necessary.

Incidence and Magnitude of Wheat Subsidies

Canadian wheat producers have for many years enjoyed the advantages of having their produce marketed through the Canadian Wheat Board (CWB). In more recent years the Board, through its distribution of grain to the domestic milling industry, at relatively low prices has followed a policy of subsidies on consumption of flour-based products. Prior to the sudden increase in prices in 1973 the Board in effect subsidized domestic producers through the operation

of the two-tier pricing system by selling to domestic millers at a higher price than that charged for export grain. The relatively centralized system of grain marketing in Canada has also facilitated other subsidy programs, ranging from storage subsidies under the Wheat Reserve Act (terminated in 1973/4), concessional freight rates on exported grain (Crow's Nest Pass rates) and on feed to British Columbia and Eastern Canada (the Feed Freight Assistance program, eliminated in 1976), the subsidy component of export credits, and the provisions of the Western Grain Stabilization Plan. This set of policies represents the major price-support activities affecting Canadian wheat producers and consumers.[1]

The calculations in Table 1 below are an attempt to measure the transfers inherent in these various wheat programs in recent years using the method outlined above. As a major part of the motivation for Canadian policy has been stabilization (presumably around a trend) the figures for the last decade are given in Appendix Table A.1: in the table below, only the figures for 1976/7 to 1978/9 are shown.

The picture over this recent period is of a policy whose primary impact has been to reduce the domestic cost of Canadian milling wheat and to stimulate export sales. Producer price protection has not been extensive. In large part this reflects stronger world markets for wheat in recent years, relative to the nineteen sixties. Producer expectations were apparently not unduly raised by the two years (1973/4 and 1974/5) when wheat reached $4.50 per bushel at the farm level, and so the return to somewhat lower wheat prices has been tolerable to the agricultural sector.

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1 Supply control, as opposed to the regular system of marketing quotas for Prairie wheat producers, was achieved in 1970/71 with the Lower Inventories for Tomorrow (LIFT) program but this is not within the time-frame discussed here. For more details of these policies see (5), (7), and (9). Foreign aid programs, though benefitting farmers, are not included here.

Compared with many other developed countries the wheat price is still low, reflecting

many other developed countries the wheat price is still low, reflecting

continued production efficiency and the lack of obvious price distortions. More detailed assessment of these factors follows the consideration of other agricultural commodities.

Incidence and Magnitude of Dairy Subsidies

In contrast to the wheat program, the dairy policy in Canada shows little sign of market orientation or the discipline of competition. As a product important on small farms, in areas not always well suited to agriculture, the dairy industry receives special treatment in many industrial countries. In Canada, support comes from both the Federal level and also from the Provinces. A network of marketing boards attempts to regulate the first-stage distribution of milk, and the central government acts largely as a buyer of last resort for the milk products. In such a system it is not always easy to isolate those policies which provide the major element of price support. In the following calculation, the aspects of milk policy which are considered are (i) direct payments to producers, in particular of manufacturing milk, net of "holdback" levies,[1] (ii) government purchase of butter, cheese and skim milk powder at support prices, and (iii) the "premium" on liquid milk over manufactured milk, representing the impact of liquid milk quotas.

The results are presented in Table 2. Again, the historical table, over

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1 A portion of the direct payments from the Canadian Dairy Commission (CDC) are withheld to pay for export subsidies on dairy products. For this reason, the export subsidies do not themselves appear as elements in the price support program, though their effect on domestic prices is included. For more details of Canadian dairy programs, see (3) and (4).

the last decade, is shown in the corresponding Appendix Table A.2, and only the last three years are presented below. In contrast to the wheat program, where both producers and consumers tended to benefit from government programs, in the case of milk the burden rests squarely on consumers. Such effects obviously impinge on production and consumption decisions in a way which suggests that the present market balance is largely a result of policy. Resources used in dairy production may not appear, in the short run, to have many alternative employments, but over time the level of price support has undoubtedly attracted both labor and investment, as well as feedstuffs, fertilizer and other inputs into dairying. Similarly, consumption is clearly restrained by the supported price of dairy products.

Incidence and Magnitude of Sugar Policies

The production of sugar beet is not an extensive activity in Canadian agriculture. As a country with strong links to the Caribbean, Canada has pursued a relatively liberal trading regime in this commodity to the advantage of developing country suppliers. An import duty on raw sugar from the Commonwealth was collected until 1973, when it was eliminated: thereafter protection at the border is given only by the continuing duty of $22 per ton on sugar from other sources, such as Cuba. In addition, there is a guaranteed producer price supported by deficiency payments from the Agricultural Stabilization Board (ASB). The impact of these two policies is reflected in the calculations below.

The estimates in Table 3 indicate the relatively low level of protection imparted by the sugar program, in particular over the recent

Table 1. Impacts of Major Wheat Policy Instruments on Producers and Consumers, 1976/7 to 1978/9

	Units	1976/7	1977/8	1978/9
Production	mill m.t.	23.6	19.9	21.2
Producer price	C.$/m.t.	117.14	120.30	103.66
Deductions	C.$/m.t.	10.52	10.52	10.79
Net Price	C.$/m.t.	106.62	109.78	92.87
Producer returns	C.$ mill	2,516	2,185	1,969
Policy Transfers				
(i) Transport subsidy exports	C.$ mill	171	222	193
(ii) Domestic Rail Subsidies	C.$ mill	73	64	73
(iii) Western Grain Stabilization Plan	C.$ mill	49	56	57
Total Policy Transfers (PSV)	C.$ mill	293	342	323
Consumption	mill m.t.	5.6	5.6	5.5
Wholesale Price	C.$/m.t.	123.82	137.05	167.18
Consumer Expenditure	C.$ mill	693	767	919
Policy Transfers				
(i) Domestic Food Price Maintenance	C.$ mill	25	99	202
Total Above Transfers (CSV)	C.$ mill	25	99	202

Source: Table A1, Appendix; see that table for notes in method and definitions.

Table 2. Impacts of Dairy Policy Instruments on Producers and Consumers, 1976/7 to 1978/9

	Units	1976/7	1977/8	1978/9
Production	mill m.t.	7.7	7.8	7.7
Producer price	C.$/m.t.	152.10	163.40	178.40
Direct payments	C.$ mill	259	269	282
Producer returns	C.$ mill	1,430	1,544	1,656
Policy transfers				
(i) Direct payments	C.$ mill	259	269	282
(ii) Support through products	C.$ mill	519	541	348
(iii) Liquid premium	C.$ mill	275	274	275
Total, above transfers (PSV)	C.$ mill	1,053	1,084	905
Consumption	mill m.t.	7.7	7.8	7.7
Wholesale price	C.$/m.t.	152.10	163.40	178.4
Consumer expenditure	C.$ mill	1,171	1,275	1,374
Policy transfers				
(i) Support through products	C.$ mill	-519	-541	-348
(ii) Liquid premium	C.$ mill	-275	-274	-275
Total, above transfers (CSV)	C.$ mill	-794	-815	-623

Source: Table A2, Appendix; see that table for notes on method and definition.

period when deficiency payments have been negligible. The tariff represents a consumer tax, but this appears to have no relationship to the support of domestic producers. Presumably the tariff is maintained in large part to give a preference to Commonwealth sugar suppliers, whose sugar can enter Canada duty free.

Intersector comparisons of policy impacts

The three tables shown above illustrate three different policy situations. A comparison among these three sectors brings out at least a part of the flavor of Canadian support policy. A summary table will facilitate this comparison. Table 4 shows the average policy impacts over the most recent three-year period included in the study (1976/7 to 1978/9). The producer and consumer subsidy values are as given in the tables, and the other measures are derived directly from these and from the level of production, producer returns, consumption and consumer expenditure.

The dairy policy stands out from those of the other sectors. The transfer to producers is over $1 billion on average for the three years. Nearly two-thirds of present dairy farm revenue is accounted for by the effects of the policy. The nominal level of protection is 190 percent, as measured from the notional "no-policy" base, though clearly in the absence of policy the different levels of production and consumption may lead to a different pattern of provincial, national and international trade.[1] The transfer to the milk

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1 This measure of protection implies that imports could fully make up the difference in production and consumption levels arising from an end to the present price policy, without raising world prices.

Table 3. Impacts of Sugar Policy Instruments on Producers and Consumers, 1976/7 to 1978/9

	Units	1976/7	1977/8	1978/9
Production	mill m.t. (raw)	0.165	0.149	0.140
Producer price	C.$/m.t. (beet)	31.31	28.75	28.75
Producer returns	C.$ mill	51.9	42.7	40.2
Policy transfers				
(i) Tariff on imports	C.$ mill	3.6	3.3	3.1
Total, above transfers (PSV)		3.6	3.3	3.1
Consumption	mill m.t.	1.1	1.1	1.2
Wholesale price	C.$/m.t.	255.60	167.77	151.01
Consumer expenditure	C.$ mill	285	189	159
Policy transfers				
(i) Tariff on imports	C.$ mill	-24	-27	-27
Total, above transfers (CSV)	C.$ mill	-24	-27	-27

Source: Table A.3, Appendix; see that table for notes on method and definitions

producers is largely at the expense of consumers, whose expenditure is nearly $750 million higher. This represents a tax of 140 percent, and implies that 58 percent of such expenditure goes in producer price support.

By contrast the sugar policy is modest in its impact. The transfer to farmers is only about $3 million, and the subsidy equivalent and protection level is less than 1 percent. Consumers pay a tax of about 14 percent on sugar purchases, most of which goes to the government or to those overseas suppliers which have duty-free access to the Canadian market. In absolute terms, this "tax", about 1¢ per lb. is small compared with other influences on sugar prices - notably the large fluctuations in world prices. Moreover, since much of the benefit accrues to overseas suppliers, it could reasonably be regarded as both a legitimate expression of Canadian development policy and a payment which helps to assure supplies in times of world shortage.

The wheat policy has elements of both producer and consumer subsidy, as mentioned above. Producers benefit by roughly $300 million, and consumers by a further $100 million. The PSE (14.4 percent) translates to a level of producer protection of about 17 percent, whilst consumers benefit from a subsidy of 12 percent. The consumer subsidy has averaged about $20 per metric ton over the last three years. It would seem unlikely that this level of protection has a major influence on production and consumption decisions, although its sudden removal would raise food prices and depress incomes of farmers in the Prairie provinces. It is clearly intended as an element of a stabilization policy, a role which is further discussed below.

Table 4. Comparison of Policy Impacts Among Sectors of Canadian Agriculture, 1976/7 to 1978/9 Average

	Wheat	Dairy	Sugar
Producer subsidy value (C.$ mill)	319	1,014	3
Producer subsidy equivalent (percent)	14.4	65.7	0.7
Producer protection[1/] (percent)	16.8	191.7	0.7
Subsidy equivalent per unit (C.$/m.t.)	14.8	131.69	22.00
Consumer subsidy value (C.$ mill)	-109	-744	-26
Consumer subsidy equivalent (percent)	-13.8	- 58.4	-12.3
Consumer protection (+) or taxation (-) (percent)	-12.1	-140.6	-14.1
Subsidy (tax) equivalent per unit (C.$/m.t.)	-19.46	- 96.62	-23.64

[1/] Protection is defined as the percentage increase in returns as measured from a no-policy base, in contrast to the subsidy equivalent which relates to the percentage of actual revenue accounted for by price supports. A similar distinction is made between consumer protection (or taxation) and the consumer subsidy equivalent.

The sum of the producer and consumer subsidy values gives an indication of the net contributions from other parts of the economy. In the case of the products under discussion, this net subsidy is as follows:

	Wheat	Dairy	Sugar
Net subsidy ($ mill)	428	270	-23

By this measure, the dairy program actually appears less "expensive" than that for wheat. The sugar policy appears to generate revenue, part of which accrues to taxpayers and part to overseas suppliers who have preferential access into the Canadian market. This illustrates the danger of identifying policy costs with financial subventions from other sectors. The relatively low-key wheat policy is not "worse" than the dairy policy in any economic sense other than as a drain on financial resources from the exchequer. But the financial consequences of a policy may have political significance.

Two further measures are useful to relate the transfer cost of policies more closely to their desired consequences - the transfer of income to farmers. These are the net subsidy (from other sectors) per dollar transferred to farmers, and the net consumer cost per dollar of transfer. Their values for the three sectors considered in this paper are as follows:

	wheat	dairy	sugar
taxpayer cost per dollar transferred to producers	$1.34	$0.27	-$7.67
consumer cost per dollar transferred to producers	0.34	0.73	8.67

By this measure, the taxpayer cost of supporting farm incomes is nearly five times as high, per dollar transferred, in the wheat program than for dairy support, while the sugar program actually yields revenue to the taxpayer. Consumers, on the other hand, presumably might object to the very high cost to them of each dollar transferred to sugar producers - because most of the benefit of higher consumer prices goes to preferential overseas suppliers - whereas they would rate the wheat program as "costless."[1] Almost three quarters of each dollar transferred to dairy farmers comes from the consumer, with the remaining quarter being contributed by the taxpayer.

Economic Costs of Policy Transfers

Economic evaluation of policies usually involves calculation of the real or resource cost of particular programs, as opposed to the transfer element. To do this requires a guess (hopefully, educated) as to how production and consumption would change in the absence of the policies considered. Elasticities of supply and demand for farm products are the stock-in-trade of economists analyzing agricultural markets, and numerous estimates of these parameters exist. Conceptually, the task of reproducing the situation in a market in the absence of policies is straightforward. In practice the choice of any one value of the relevant elasticities limits the interpretation of the analysis, since each elasticity will only be appropriate

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1 If the wheat program were considered as a consumer subsidy, the taxpayer cost per dollar transferred to consumers is $2.79, a somewhat expensive form of concession on food prices.

to a particular set of circumstances. [1] Instead it is probably best to consider a range of such values. Three such values are reported here: a) a low elasticity, for production and consumption, of 0.1, implying either a short-run response or a corresponding increase or decrease in other price levels which will offset the direct price effect, b) a middle range estimate of 0.3, which implies some adjustment in generally inflexible production and consumption patterns, and c) a larger estimate of 0.5, indicating rather more adjustment and implying either a longer run decision period or a sharp change in prices relative to other products which act as substitutes on production or consumption. This "high" estimate is still modest by the standards of non-agricultural products, but most analysts would agree that farm production and consumption of basic foods do tend to be markedly inelastic with respect to price.

The range of production and consumption changes indicated by these various elasticity values is given in Table 5. Of themselves the estimates are an indication of the impact on production and consumption patterns of removing the policies under consideration. Which of the estimates to choose is as much a matter of taste as of science. A reasonable interpretation would be as follows, based on average 1976/77 - 1978/79 figures.

- Canadian wheat policy, in particular the transportation subsidies, probably supports an extra one million tons of wheat production in the prairies. Consumption is stimulated by perhaps 80 - 100 thousand

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1 Each empirical estimate will be specific to the assumptions used, as to the price levels in other markets, the functional form, the period of observations, and so on. To use these estimates "out of context" risks imparting a spurious degree of concreteness to the calculations.

tons by lower consumer prices. Additional exports under the policy are probably of the order of 700 thousand tons as a result of production and consumption stimulation.

- Canadian dairy policy, through the liquid milk quotas, the direct payments, and the support for dairy products, probably encourages production of about 1 - 1.5 mill tons of extra milk. Consumption of milk and milk products is reduced by the policy by perhaps a further million tons, implying an increase in imports of about 2 - 2.5 mill tons milk equivalent (in the form of milk products) if the policies were relaxed.
- Canadian sugar policy, through the tariff on non-Commonwealth sugar imports, probably encourages less than 500 tons of extra sugar production. Consumption is constrained by about 50 thousand tons through the higher consumer price, implying a reduction in imports of about that magnitude.

The estimates of the quantitative changes, if not dramatic in their own right, are useful to allow resource cost calculations to be attempted.

Employing standard assumptions for the translation of price and quantity changes to economic costs, the policies can be evaluated in terms of efficiency. The various steps are shown in Table 6, below, for the average of the last three years. The "Production loss" represents the difference between the calculated value of extra production stimulated by the support programs and the resource cost of producing the extra output. Since under competitive conditions the resource cost at the margin will tend to be equal to the producer's price level, this loss can be derived from the impact

Table 5. Range of Production and Consumption Changes with Removal of Government Price Policies Under Various Elasticity Assumptions, 1976/7 to 1978/9 Average

	Wheat	Dairy	Sugar
Producer Subsidy Equivalent (%)	14.4	65.7	0.7
Production base (mill tons)	21.5	7.7	0.15
Production decrease, with:	mill tons	mill tons	thousand tons
Low elasticity (0.1)	0.31	0.51	0.11
Medium elasticity (0.3)	0.93	1.52	0.32
High elasticity (0.5)	1.55	2.53	0.53
Consumer subsidy equivalent (%)	13.8	-58.4	-12.3
Consumption base (mill tons)	5.6	7.7	1.1
Consumption increase, with:	mill tons	mill tons	thousand tons
Low elasticity (0.1)	-0.08	0.45	13.53
Medium elasticity (0.3)	-0.23	1.35	40.59
High elasticity (0.5)	-0.39	2.25	67.65

of the policy on producer price and on the extra quantity of output generated. The "consumption loss" reflects the difference between the value of consumption foregone when prices rise and the value of that quantity of the commodity when sold elsewhere. If the consumer price reflects the valuation of consumption at the margin one again can calculate the loss from the quantity and price effects. The "economic cost" is then the sum of these two "distortion" losses.

The results show clearly the high economic cost of the dairy policy relative to that for wheat, and also the very small cost of the sugar policy in terms of resource misallocation.[1] Total real income loss from the dairy policy appears to be about $165 million, under the assumption of "medium" range price elasticities, or about $8 per head of the population. For wheat, the economic cost is probably less than $10 million, and for sugar perhaps $500 thousand.

It has long been recognized by economists that the economic loss connected with a price policy in a particular sector is likely to be relatively small. The relevant criterion, however, is not whether the absolute cost is low but whether the cost of achieving particular objectives is reasonable.

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1 The assumptions needed for these figures to be accurate estimates of resource cost are, of course, rather strict: fully employed resources and competitive markets. If, as is probably the case, non-agricultural markets are less competitive than agriculture, the costs are underestimated, as agriculture would already be using more resources than optimal. If resources in agriculture would otherwise be underemployed, the costs here overstate the true social cost. No simple way exists of correcting for these two factors, but the second is less important in the long run. The estimates are therefore probably on the low side. The measures reported here are the standard welfare triangles, representing the integral between the supply curve (demand curve) and the "no-policy" price, over the extra supply (lower demand) due to price support. The assumption is that the supply curve represents marginal production costs (under competitive conditions) and the demand curve reflects the marginal value of consumption. Distortions from an equality of marginal costs and valuations represent economic costs, even in the case (such as wheat) where consumption is higher than otherwise.

Table 6. Production and Consumption Distortion Losses Under Low, Medium and High Elasticity Assumptions, 1976/7 to 1978/9

	Wheat	Dairy	Sugar
	$ mill	$ mill	$ thousand
Production loss[a]	2.29		
Low elasticity	6.88	33.58	1.21
Medium elasticity	11.47	100.08	3.52
High elasticity		166.59	5.83
Consumption loss[b]			
Low elasticity	0.78	21.74	159.92
Medium elasticity	2.24	65.22	479.77
High elasticity	3.79	108.70	799.62
Economic Cost[c]			
Low elasticities	3.07	55.32	161.13
Medium elasticities	9.12	165.30	483.29
High elasticities	15.26	275.29	805.45

a) Calculated as one half of producer subsidy equivalent, multiplied by estimated supply change.

b) Calculated as one half of consumer subsidy equivalent, multiplied by estimated demand change.

c) The sum of production and consumption loss: intermediate estimates, such as with low supply elasticity and high demand elasticity have been omitted from the table but will fall within the range shown here.

The next step is therefore to relate these economic costs to the benefits of policy - in particular to the transfer of income to producers of wheat, milk and sugar. Table 7 presents the ratio of economic costs to the increase producer incomes (producer subsidy value less resource costs of extra output) occasioned by the policies. The figures represent the cost per unit of the transfers. The results are of course influenced by the elasticity assumptions and hence subject to the caveats introduced above - with policies generally more costly if producers respond to price changes. Though it is difficult to find a "norm" for the cost of transfer policies, except of course to compare them with "costless" transfers such as direct payments, one could presumably argue that any such transfer payment that cost as much as 10 percent in lost economic value (quite apart from administrative costs) was relatively inefficient. By this admittedly arbitrary criterion, the wheat policy looks admirably cheap, the dairy policy very costly, and the sugar program almost as expensive as that for milk.

These farm programs have, of course, objectives other than income transfer to producers. The wheat policy has the very definite aim of keeping down food prices. At this it is moderately inexpensive, costing in the order of 4 cents per dollar consumer expenditure saved.[1] If one allows both producer gain and consumer savings as policy objectives, and weights them equally, the economic cost is probably about 3 cents on the dollar. The justification for the relatively expensive dairy program presumably lies in the regional concentration of this activity, in Eastern Canada, where small farms abound, and where rural incomes are low. Though understandable as a motive, the costs of the policy still suggest that other ways of achieving the same objectives

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1 Estimated from the ratio of economic cost to consumer benefit, using middle range elasticities. This is probably an upper bound, as the elasticity of wheat for food tends to be low. Using an elasticity of 0.1 gives a cost of 1.5 cents per dollar consumer saving.

Table 7. Cost Per Unit of Transfer Income to Producers, 1976/7 to 1978/9

	Wheat	Dairy	Sugar
Cost per unit of transfer a)			
-low elasticity	0.01	0.06	0.05
-medium elasticity	0.03	0.18	0.15
-high elasticity	0.05	0.33	0.26

a) calculated as ratio of economic cost to Producer subsidy value adjusted for extra resource costs.

might be preferable. This is confirmed by calculating the cost at the margin of transferring income to dairy farmers through price supports, which at 29 cents per extra dollar (for the middle range elasticities) indicates an expensive instrument of policy.[1] The sugar program, as indicated above, incurs most of its "cost" in the act of granting preference to certain overseas suppliers: a full evaluation of this policy would have to incorporate the aims of the development assistance program as well as those of farm price support.

An International Comparison

The suitability of a particular set of agricultural policies to Canadian conditions is a domestic matter: one would not expect other countries to tackle problems in the same manner. There are, however, two reasons why an international comparison is of interest. First, it is possible that by examining the performance of various countries in tackling similar problems some light may be shed on the value of alternative approaches. And, secondly, the activities of developed countries in managing their own markets for temperate-zone farm produce have a major impact on both the structure and performance of world markets in those products. These two considerations are the subject of this section.

The empirical study conducted by the FAO on which the policy analysis tables for Canada in the Appendix were based, covers also the price policies in the United States, Japan, Australia and the European Community. This coverage gives an opportunity to compare policy performance across a range of

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1 Marginal policy costs, not reported here but useful when evaluating small changes in price support policies, can be readily obtained from the figures in the tables. See: Josling, T., "A Formal Approach to Agricultural Policy," Journal of Agricultural Economics, xx (2), 1969.

importing and exporting developed countries. The broad outcome of such a comparison holds few surprises. The major exporters have generally had lower levels of prices and of producer subsidies than the importing regions.[1] The level of protection (particularly for grains) dropped significantly with world price increases in the 1973-75 period. Dairy support is high in all the countries studied, implying general problems in this area. Sugar beet production also benefits from extensive support in industrial countries.

The estimates in Table 8 show these comparisons. The level of producer subsidy for wheat, as measured by the subsidy equivalent of the various price-support measures, is lowest in Australia. Subsidy levels have grown in the last five years in the U.S., in particular following the introduction of the deficiency payments program, which now assures most wheat farmers of the target price for their output. The small wheat sector in Japan is heavily protected, in an attempt to restrain production of rice. The European Community, after having taxed producers heavily when world prices were high is now offering a substantial level of subsidy to their wheat farmers. European farmers, in contrast to those in North America and Australia, have not in general had to face the swings in world market prices in recent years.

In the dairy sector, the comparison of support levels shows Canada with a relatively high level of implicit subsidy, below the European Community but

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1 In this respect, the European Community, though itself a major exporter, acts as an importer in matters of policy. Preoccupation with domestic agricultural developments has so far precluded any move to examine its farm sector in the context of world markets. Exports are the reluctant surpluses engendered by an overprotected home market.

Table 8: Comparison of Producer Subsidy Equivalents Among Various Developed Countries, 1974-1978

	1974	1975	1976	1977	1978
WHEAT					
Australia	-12.6	-10.1	-2.3	4.7	4.4
Canada	10.1	10.6	11.6	15.6	16.4
EC	-41.2	-9.0	22.8	57.7	63.1
Japan	63.1	80.6	94.9	82.1	79.1
United States	1.9	0.1	3.3	28.4	15.7
DAIRY					
Australia	33.3	26.2	36.6	39.0	38.9
Canada	67.6	59.6	94.9	89.3	64.4
EC	70.3	80.4	92.1	93.8	92.5
Japan	20.2	18.1	22.6	26.2	28.5
United States	12.0	27.4	37.8	45.9	21.9
SUGAR					
Australia	-16.7	-15.4	-10.6	-4.5	-10.2
Canada	3.8	5.2	7.1	7.7	7.6
EC	-139.8	-243.1	29.5	88.7	125.7
United States	-0.3	10.9	12.8	28.3	61.0

above the level of the U.S. and Australia. The less important Japanese dairy industry receives rather less support than the other countries listed. In contrast to grains, support for milk and milk products is more stable over the years, reflecting much less variation in world price levels.

Comparison of support levels in the sugar sector indicates again the high level of protection given at present to European farmers, though this was replaced by an effective tax on output at the time of high world prices. Other countries exhibit a much smaller swing in protection levels. Besides the major developed country sugar exporter, Australia, which has attempted to curtail production in recent years, Canada has the lowest level of production subsidy. U.S. production appears to be subsidized at an increasing rate in the past three years, reflecting strong domestic pressures in that country.

These comparisons clearly do not reflect the degree to which underlying problems and circumstances differ among countries. It is probably true that the small scale of wheat farming in Europe and in Japan relative to the "new" agricultural areas of North America and Australia makes the problem of income maintenance much more difficult. Large firms with relatively low labor costs can presumably both adjust over time and survive temporary market fluctuations more easily than the small farmer. But it is to the "credit" of the exporting countries, particularly Canada and Australia, that despite very serious fluctuations of price in the wheat market their commitment to remaining competitive has not seriously wavered. In periods of rapid inflation it is tempting to boost farm price supports to offset rising costs. But for commodities such as wheat, where the real price can as easily fall as rise,

cost-recoupment can lead to major inefficiencies in resource allocation. High cereal prices in Europe, for instance, represent a significant burden not only on consumers and on industries that use grains, but on the economy as a whole. To avoid such costs in an uncertain world requires considerable understanding by the farm sector itself as well as courage by the politician.

The willingness to allow at least a measure of response to world price changes has important implications for the stability of world markets. Canada has in fact played a major role in offsetting the destabilizing influence of supply fluctuations in the wheat market. A recent study has demonstrated the significance of changes in the level of stocks in Canada as an element in world market stability.[1] For every $10 increase in wheat prices, Canadian stocks are reduced by (an average) 1.29 million tons. This compares with a release from U.S. stocks of 0.97 million tons and a buildup of stocks of 0.17 million tons by the EC when prices rise. The negative impact of domestic price-support policies on market stability - subsidizing consumption and restraining production when prices are high - is also small in Canada's case. The same $10 rise in price restricts export volume by 0.08 million tons in Canada (through the subsidized price of domestic wheat), as opposed to 0.22 million tons export supression in the U.S. and 0.89 million tons in the EC. In fact, the study concludes that Canadian stock adjustments alone offset much of the potentially destabilizing effect of other developed country policies in times of rising prices. Canadian wheat policy is a clearly positive

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1 T. Josling, Developed Country Agricultural Policies and Developing Country Food Supplies: The Case of Wheat, International Food Policy Research Institute, (forthcoming).

international force for stability as well as being relatively efficient in attaining domestic objectives.

If the verdict on wheat policy is positive, as viewed from outside the country, the effects of the dairy policy are less felicitous. The few countries that produce low-cost dairy products for the world market have a legitimate complaint that these markets are drastically curtailed by domestic price support programs in much of the developed world. Canada shares in the blame for displacing perhaps 40 million tons of milk in the form of milk products from developed country markets as a result of domestic price policies.[1] The amount of animal feedingstuffs that is used to produce this milk is also a not insignificant part of the world's agricultural balance. The search for alternative ways to assist small producers in relatively disadvantaged areas must continue if this waste of economic resources is to be curtailed.

Sugar policies are an old-established point of contention in international discussion. The underlying efficiency of cane-sugar has been a basic tenet of developing country attitudes towards agricultural trade. Persuasive lobbies in developed countries have ensured that beet production is supported against inroads from the tropics, and more recently from the manufacturers of isoglucose and other sweeteners. Canada appears in this regard to have a reasonable record, accepting Commonwealth sugar as a normal and substantial source of supply.

Conclusion

It is not possible from the study of three commodities to get a complete picture of the impact of Canadian farm policies, nor indeed to get a detailed

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1 See: FAO, Progress of International Agricultural Adjustment, c 77/20, FAO, Rome, August 1977, p 31.

evaluation of the policies towards those three sectors from a brief examination of their transfer effects. But the broad impression from the above discussion is probably robust enough to withstand some generalization.

The grains policy as a whole has been one of market orientation, with limited government assistance and an emphasis on stabilization rather than support. In addition to the older established wheat policies, the more recent Western Prairie Grains Stabilization Program has reinforced the commitment to the more modest aim of stabilization, though it remains to be seen how such a policy will cope with depressed prices for grains over a period of years. The move toward "corn-competitive" pricing of western feed grains and the removal of the Feed Freight Assistance have indicated a market-related policy for barley. The modest (8 cent per bushel) tariff on imported corn is a monument to the benefits of basing livestock production on low-cost feed, rather than artificially boosting domestic production.

On the livestock side, government policy has been moving toward more rather than less intervention in the last few years. With the exception of milk, where payments through the Canadian Dairy Commission take up the largest part of funds under the Agricultural Stabilization Board, the level of government cost has historically been rather modest.for livestock products. But the revised Agricultural Stabilization Act has taken the federal government into new areas of regulation and price support and may change over time the balance of agricultural policy. Support for poultry and eggs at the federal level and the discussion of further programs for hogs are examples of this change. To date the beef sector has not been blessed with extensive government involvement, due in part to the opposition of many producers,

though temporary measures to restrict imports have been employed. The extensive system of provincial marketing boards, a notable characteristic of Canadian agricultural policy, may also be moving towards a tighter regulation of markets.[1]

The sugar policy may not be typical of the range of arable (non-grain) crops which make up another significant part of Canadian agriculture. Some of these crops do benefit from provincial and federal support. But the main cost of farm policies rarely arises in the localized and specialized products. And the emphasis in Canada on marketing discipline rather than extensive price support and intervention buying has left these sectors probably more healthy than in a number of other countries.

The main task for Canadian policy would seem to be to hold onto the basic structure of a market-oriented farm program, resisting the temptation to move into a system of price guarantees of the kind used in the milk sector and found widely in other countries. Stabilization around responsive trends can increase production efficiency: isolation from such trends builds up trouble and makes eventual adaptation much more costly.

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1 See the discussion of these issues in (2) and (10).

APPENDIX

Producer and Consumer Subsidy Equivalents,

Canada, 1974-78,

Wheat, Dairy, and Sugar

Table A.1 (a) Producer Subsidy Equivalents and Values, Wheat, 1974/5 to 1978/9

		Unit	1974/5	1975/6	1976/7	1977/8	1978/9
1.	Production	m.m.t.	13.3	17.1	23.6	19.9	21.2
2.	Producer Price [1]	$/m.t.	164.39	146.28	117.14	120.30	103.66
3.	Direct Deduction[2]	$/m.t.	-7.81	-10.52	10.52	-10.52	-10.79
4.	Total Producer Receipts[3]	$ mill	2,082.5	2,321.5	2,516.2	2,184.6	1,968.8
5.	Policy Transfers to Producers[a] WGSP[4]	$ mill	-	-	48.7	56.0	56.8
	[b] Western Rail[5]	$ mill	75.5	82.5	73.1	63.7	73.1
	[c] Crows Nest [6] Rate Subsidy	$ mill	171.0	221.0	171.0	222.0	193.0
6.	Total policy transfers	$ mill	246.5	303.5	292.8	341.7	322.9
7.	Subsidy per unit	$/m.t.	15.83	14.42	12.41	17.17	15.23
8.	Proportional Subsidy[7]	%	10.1	10.6	11.6	15.6	16.4

Notes:
1 Total prices received for sales to the Canadian Wheat Board, based on No. 1 CWRS wheat
2 Those cover transport and handling charges
3 Net of deductions
4 Government contribution to Western Grains Stabilization Plan
5 Subsidies to branch lines in Western Canada
6 Estimated value
7 Line 6 as a proportion of line 4

Table A.1 (b) Consumer Subsidy Equivalents and Values, Wheat, 1974-78

	Unit	1974	1975	1976	1977	1978
1. Consumption	m.m.t.	4.9	5.3	5.6	5.6	5.5
2. Consumption price [1/]	$/m.t.	193.27	171.96	123.82	137.05	167.18
3. Total consumer costs	$/mill.	947.0	911.4	693.4	767.5	919.5
4. Policy transfers to consumers						
a) Domestic seed price maintenance [2/]	$/mil.	361.9	278.5	24.6	98.7	202.1
b) Feed freight assistance [3/]	$ mil.	21.2	21.0	-	-	-
5. Total policy transfers	$ mil.	383.1	299.5	24.6	98.7	202.1
6. Subsidy per unit	$/m.t.	78.18	56.51	4.39	17.63	36.75
7. Proportional subsidy	%	40.4	32.9	3.5	12.9	22.0

Notes 1/ Wholesale price of domestic wheat.

2/ Unit difference between export price and fixed domestic price for wheat for flour times consumption of wheat for flour.

3/ Government subsidies to livestock producers in E. Canada and B. Columbia through subsidized freight rates. Policy discontinued in 1976.

Table A.2(a) Producer Subsidy Equivalents and Values, Dairy, 1974-78

	Unit	1974	1975	1976	1977	1978
1. Production	m.m.t.	7.6	7.8	7.7	7.8	7.7
2. Producer Price [1]	$/m.t.	155.4	189.8	152.1	163.4	178.4
3. Direct Producer Payments	$/million	221	260	259	269	282
4 Total Producer Receipts	$/mil	1434	1711	1450	1451	1452
5. Policy Transfers to producers						
a) Support [2] - Butter	$ mil	66	92	143	119	75
- Cheese	"	208	231	232	254	120
- Skim Powder	"	53	50	144	168	153
b) Marketing board [3]	"	161	156	275	274	275
c) Direct Payments	"	221	260	259	269	282
6. Total policy transfers	$ mil	709	789	1,053	1,084	905
7. Subsidy per unit	$/m.t.	93.29	101.15	136.75	138.97	117.53
8. Proportional subsidy	%	49.4	46.1	72.6	74.7	62.3

Notes: 1 Average producer price, combined sales of milk, cream and farm butter (all in terms of milk)
2 Unit difference between domestic and world prices (taken as Australian export unit values raised 25% to account for transportation cost) per unit times domestic production.
3 Unit difference between fluid and manufacturing milk prices maintained by the Marketing Board, times liquid milk production.

Table A.2(b) Consumer Subsidy Equivalents and Values, Dairy, 1974-78

	Unit	1974	1975	1976	1977	1978
1. Consumption	m.m.t.	7.6	7.7	7.7	7.8	7.7
2. Consumption price[1/]	$ m.t.	155.4	189.8	152.1	165.4	178.4
3. Total consumer costs	$ mil.	1,181.0	1,461.5	1,171.2	1,290.1	1,373.7
4. Policy transfers to consumers[2/]						
a) Support	$ mil.	-327	-373	-519	-541	-348
b) Marketing Board	$ mil	-161	-156	-275	-274	-275
5. Total policy transfers	$ mil	-488	-529	-794	-815	-623
6. Subsidy per unit	$/m.t.	-64.21	-68.70	-103.12	-104.49	-80.91
7. Proportional subsidy	%	-41.3	-36.2	-67.8	-63.2	-45.4

Notes 1. Taken as the producer price as this is a composite price covering milk going to all users.

2. Same values as for producers as most production is consumed domestically.

Table A.3(a) Producer Subsidy Equivalents and Values, Sugar, 1974/5 to 1978/9.

	Unit	1974/75	1975/76	1976/77	1977/78	1978/79
1. Production[1]	m.m.t.	0.124	0.133	0.165	0.169	0.140
2. Producer Price[2]	$/m.t.	58.24	42.43	31.31	28.75	28.75
3. Total Producer Receipts	$ mil	73.9	55.5	52.4	40.3	35.3
4. Policy Transfers to producers						
a) Tariff[3]	$ mil	2.7	2.9	3.6	3.3	3.1
5. Total policy transfers	$ mil	2.7	2.9	3.6	3.3	3.1
6. Subsidy per unit	$/m.t.	22.58	21.80	22.42	20.81	19.29
7. Proportional subsidy	%	3.8	5.2	7.1	7.7	7.6

Notes: 1 Domestic sugar beet production in terms of raw sugar equivalent.

2 Price per "standard ton," equal to 250 lbs refined sugar

3 In 1973 the import duty on sugar from the Commonwealth was reduced to nil. The protective effect of the tariff schedule was assumed to shift to that on raw sugar from non-Commonwealth sources (principally Cuba at C$ 1.01/100 lbs.

Table A.3(b) Consumer Subsidy Equivalents and Values, Sugar, 1974-78

	Unit	1974	1975	1976	1977	1978
1. Consumption [1]	m.m.t.	1.0	1.0	1.1	1.2	1.2
2. Consumption price	$/m.t.	651.78	465.27	255.60	167.77	151.01
3. Total consumer costs	$ mil	651.8	465.3	281.2	201.3	158.9
4. Policy transfers to consumers [2]						
a) Tariff	$ mil.	-22.2	-22.1	-23.9	-26.7	-27.1
5. Total policy transfers	$ mil.	-22.2	-22.1	-23.9	-26.7	-27.1
6. Subsidy per unit	$/m.t.	-22.70	-21.80	-22.00	-20.92	-19.83
7. Proportional subsidy	%	-3.4	-4.8	-8.4	-13.3	-15.0

Notes 1 Raw sugar equivalent

2 See note on producer sheet

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